Emerson® SYLVANIA

SERVICE MANUAL

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- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's

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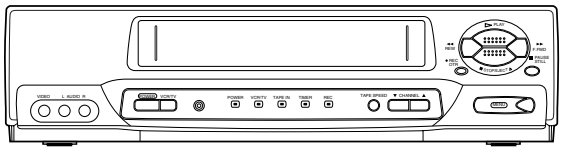
- Standard Maintenance
- Alignment for Mechanism
- Disassembly/Assembly of Mechanism
- Alignment Procedures of Mechanism

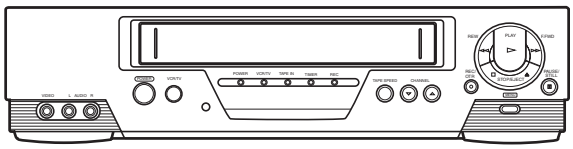
Sec. 3: Exploded views and Parts List Section
- Exploded views
- Parts List

VIDEO CASSETTE RECORDER

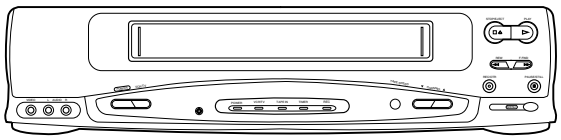
EWV601A



KVS600A



SSV6001A



VHS

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

MAIN SECTION

VIDEO CASSETTE RECORDER

EWV601A/KVS600A/SSV6001A

Sec. 1: Main Section

- **Specifications**
- **Preparation for Servicing**
- **Adjustment Procedures**
- **Schematic Diagrams**
- **CBA's**

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Remark
1. Video					
1-1. Video Output (PB)	Vp-p	0.8	1.0	1.2	SP Mode
1-2. Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3. Video S/N Y (R/P)	dB	40	45		SP Mode, W/O Burst
1-4. Video Color S/N AM (R/P)	dB	37	41		SP Mode
1-5. Video Color S/N PM (R/P)	dB	30	36		SP Mode
1-6. Resolution (PB)	Line	230	245		SP Mode
2. Servo					
2-1. Jitter Low	μsec		0.07	0.12	SP Mode
2-2. Wow & Flutter	%		0.3	0.5	SP Mode
3. Normal Audio					
3-1. Output (PB)	dBV	-9	-6	-3	SP Mode
3-2. Output (R/P)	dBV	-9	-6	-1.5	SP Mode
3-3. S/N (R/P)	dB	36	41		SP Mode
3-4. Distortion (R/P)	%		1.0	4.0	SP Mode
3-5. Freq. resp (R/P) at 200Hz	dB	-11	-4		SP Mode
(-20dB ref. 1kHz) at 8kHz	dB	-14	-4		SP Mode
4. Tuner					
4-1. Video output	Vp-p	0.8	1.0	1.2	E-E Mode
4-2. Video S/N	dB	39	42		E-E Mode
4-3. Audio output	dB	-10	-6	-2	E-E Mode
4-4. Audio S/N	dB	40	46		E-E Mode
5. Hi-Fi Audio					
5-1. Output	dBV	-12	-8	-4	SP Mode
5-2. Dynamic Range	dB	70	85		SP Mode
5-3. Freq. resp (6dB B.W)	Hz		20 ~ 20K		SP Mode

Note: Nominal specs represent the design specs. All units should be able to approximate these – some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced**.**

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1)Wires covered with PVC tubing

2)Double insulated wires

3)High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1)Insulation tape

2)PVC tubing

3)Spacers

4)Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure

1)Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector. (Discard it.)

2)Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3)Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4)Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d) (d')
120 V	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

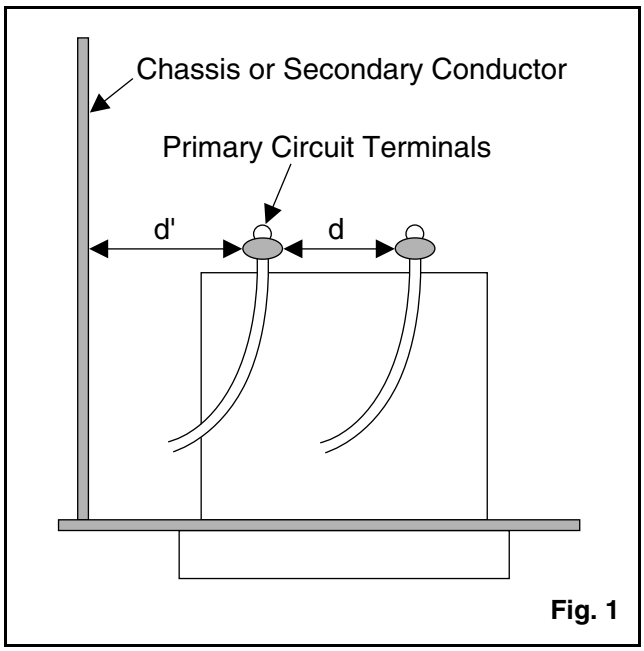


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON) :

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

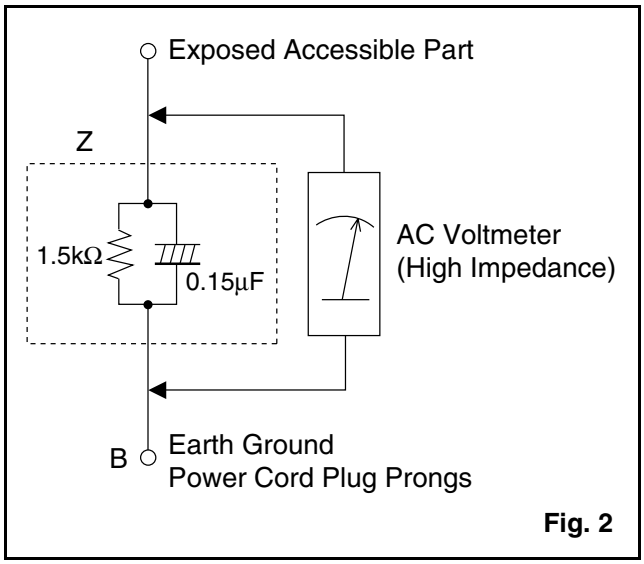


Fig. 2

Table 2: Leakage current ratings for selected areas

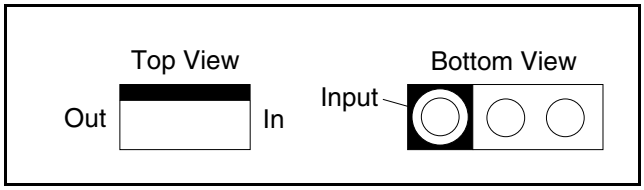
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15μF CAP. & 1.5kΩ RES. Connected in parallel	i≤0.5mA Peak	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

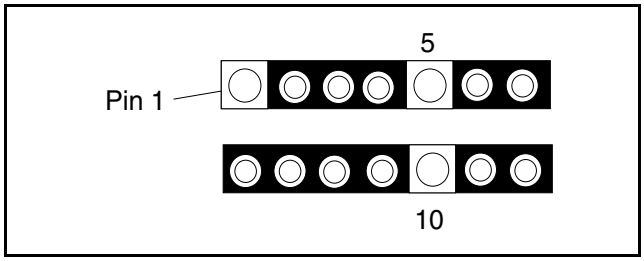
STANDARD NOTES FOR SERVICING

Circuit Board Indications

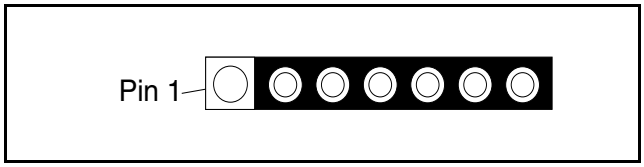
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.

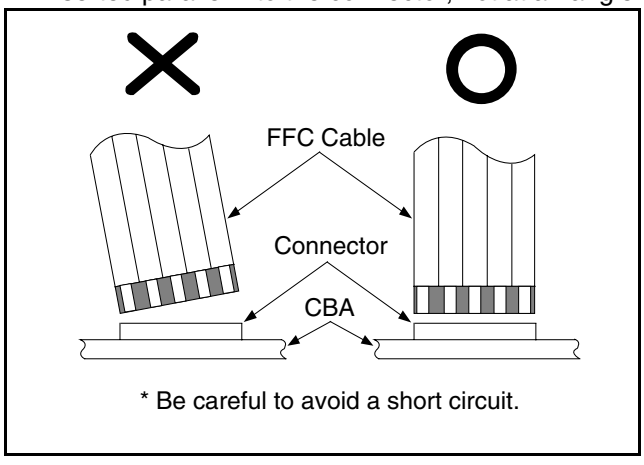


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



* Be careful to avoid a short circuit.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:.

(1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

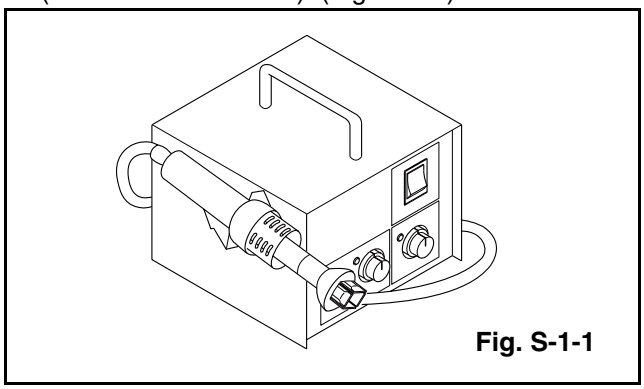


Fig. S-1-1

(2) Remove the flat pack-IC with tweezers while applying the hot air.

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)
2. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

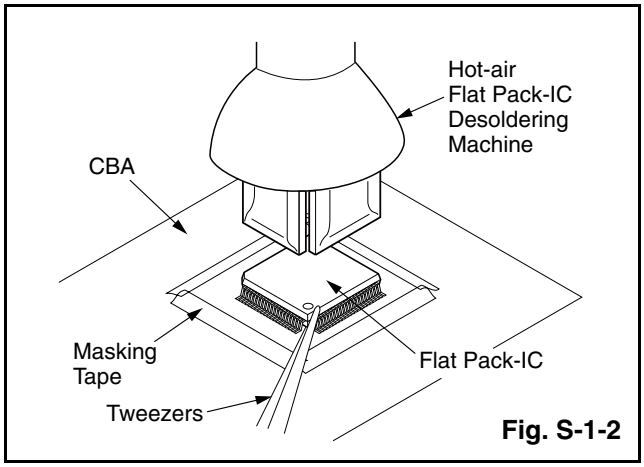


Fig. S-1-2

With Soldering Iron:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

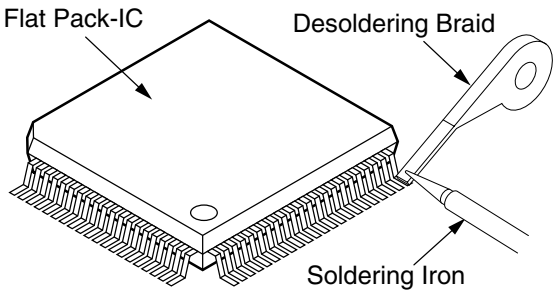


Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

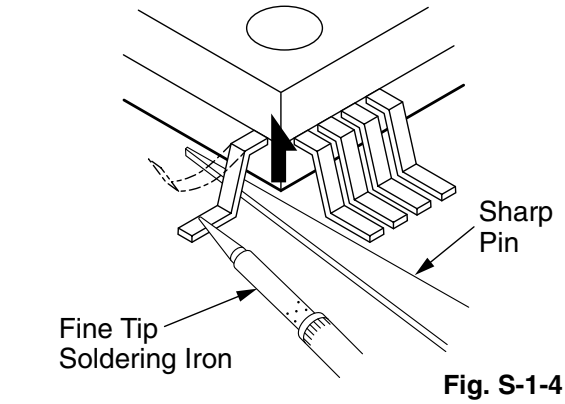


Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

(2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

(3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

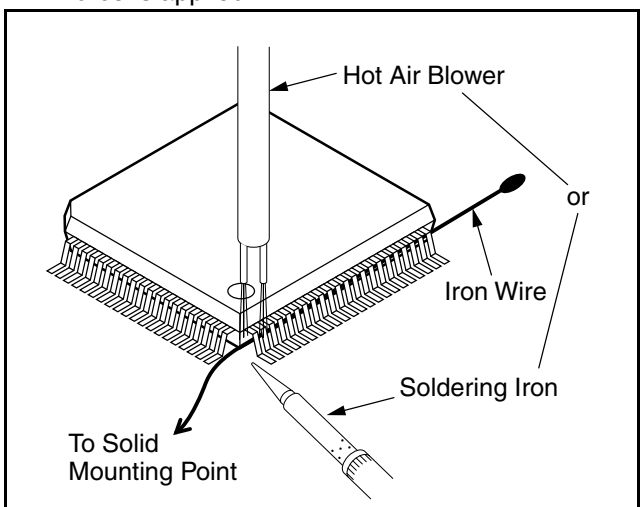


Fig. S-1-5

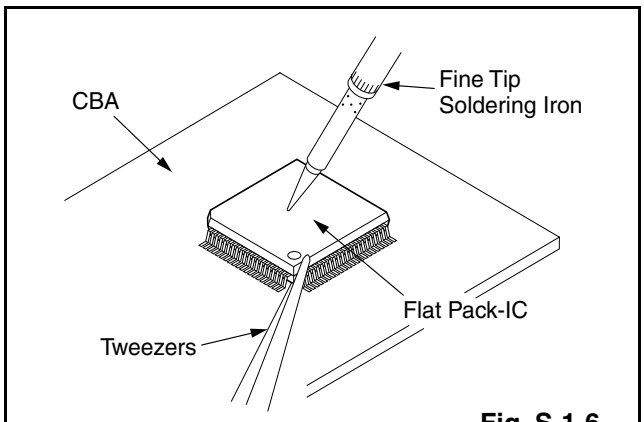


Fig. S-1-6

2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The " ● " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

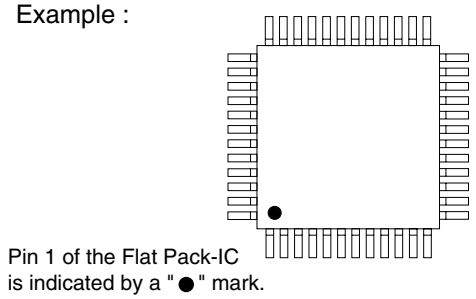


Fig. S-1-7

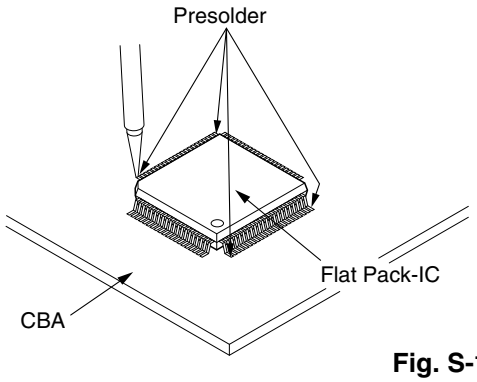


Fig. S-1-8

Instructions for Handling Semi-conductors

Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.

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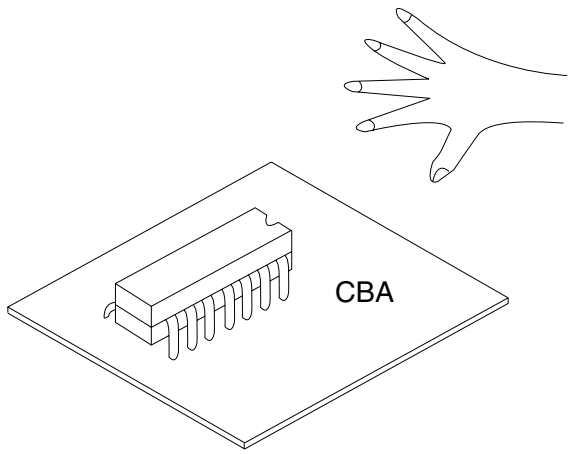

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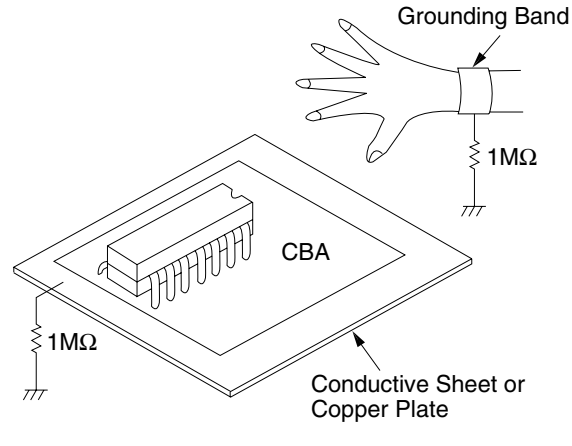


PREPARATION FOR SERVICING

How to Enter the Service Mode

About Optical Sensors

Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, TP502 (SENSOR INHIBITION) to GND. This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 1.

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

About REC-Safety Switch

Caution:

The REC-Safety Switch is directly mounted on the Main CBA. When the Deck Mechanism Assembly is removed from the Main CBA for servicing, this switch does not work automatically.

What to do for preparation

In order to record, press the Rec button while pushing REC-SAFETY SW on the Main CBA. See Fig. 1.

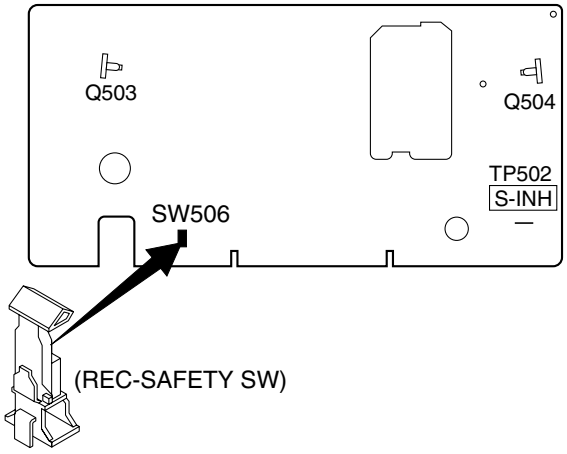


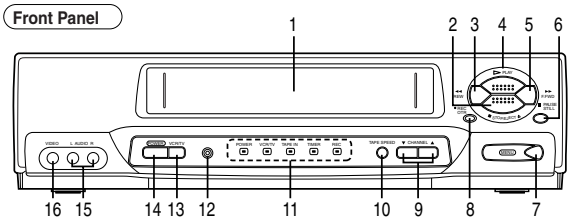
Fig. 1

OPERATING CONTROLS AND FUNCTIONS

EWV601A

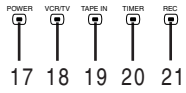
DESCRIPTION OF CONTROLS

Front Panel



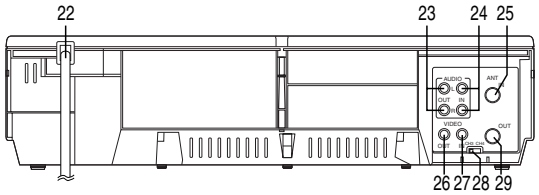
1. Cassette Compartment
2. STOP/EJECT button
3. REW button
4. PLAY button
5. F.FWD button
6. PAUSE/STILL button
7. MENU button
8. REC/OTR button
9. CHANNEL buttons
10. TAPE SPEED button
11. Display Window
12. Remote Sensor
13. VCR/TV button
14. POWER button
15. AUDIO Input jacks
16. VIDEO Input jack

Display Window



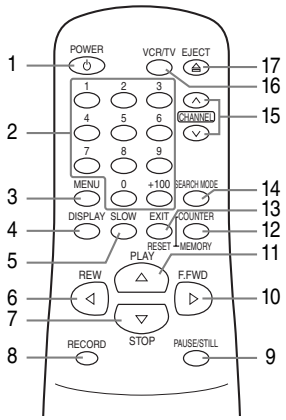
17. POWER indicator
18. VCR/TV indicator
19. TAPE IN indicator
20. TIMER indicator
21. REC indicator

Rear Panel



22. AC Power Cord
23. AUDIO OUT jacks
24. AUDIO IN jacks
25. ANT. IN jack
26. VIDEO OUT jack
27. VIDEO IN jack
28. CH3/CH4 selector switch
29. ANT. OUT jack

Remote Control

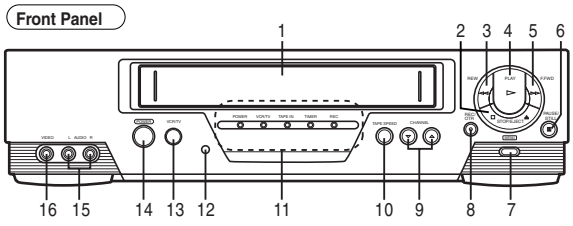


1. POWER button
2. NUMBER buttons
3. MENU button
4. DISPLAY button
5. SLOW button
6. REW button
7. STOP button
8. RECORD button
9. PAUSE/STILL button
10. F.FWD button
11. PLAY button
12. COUNTER/MEMORY button
13. EXIT/RESET button
14. SEARCH MODE button
15. CHANNEL buttons
16. VCR/TV button

KVS600A

DESCRIPTION OF CONTROLS

Front Panel



1. Cassette Compartment
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9. CHANNEL buttons
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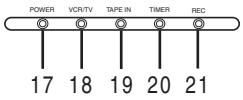
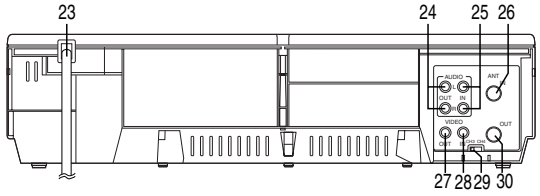
11. Display Window
12. Remote Sensor
13. VCR/TV button
14. POWER button
15. AUDIO Input jacks
16. VIDEO Input jack

Display Window



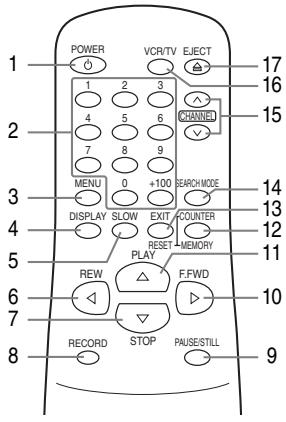
17. POWER indicator
18. VCR/TV indicator
19. TAPE IN indicator
20. TIMER indicator
21. REC indicator

Rear Panel



22. AC Power Cord
23. AUDIO OUT jacks
24. AUDIO IN jacks
25. ANT. IN jack
26. VIDEO OUT jack
27. VIDEO IN jack
28. CH3/CH4 selector switch
29. ANT. OUT jack

Remote Control

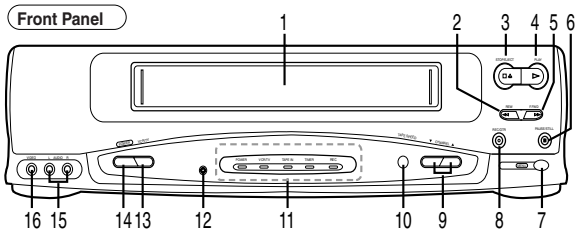


1. POWER button
2. NUMBER buttons
3. MENU button
4. DISPLAY button
5. SLOW button
6. REW button
7. STOP button
8. RECORD button
9. PAUSE/STILL button
10. F.FWD button
11. PLAY button
12. COUNTER/MEMORY button
13. EXIT/RESET button
14. SEARCH MODE button
15. CHANNEL buttons
16. VCR/TV button

SSV6001A

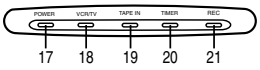
DESCRIPTION OF CONTROLS

Front Panel



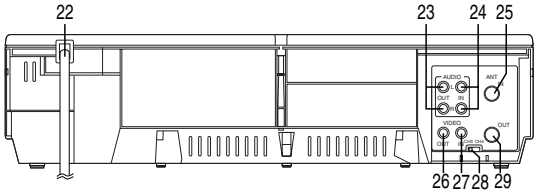
1. Cassette Compartment
2. REW button
3. STOP/EJECT button
4. PLAY button
5 F.FWD button
6 PAUSE/STILL button
7. MENU button
8. REC/OTR button
9. CHANNEL buttons
10. TAPE SPEED button
11. Display Window
12. Remote Sensor
13. VCR/TV button
14. POWER button
15. AUDIO Input jacks
16. VIDEO Input jack

Display Window



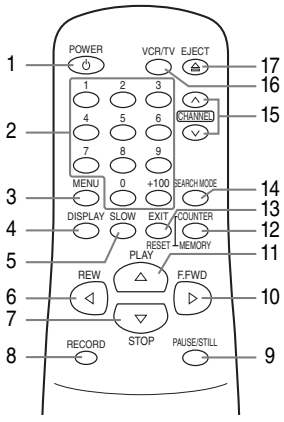
17. POWER indicator
18. VCR/TV indicator
19. TAPE IN indicator
20. TIMER indicator
21. REC indicator

Rear Panel



22. AC Power Cord
23. AUDIO OUT jacks
24. AUDIO IN jacks
25. ANT. IN jack
26. VIDEO OUT jack
27. VIDEO IN jack
28. CH3/CH4 selector switch
29. ANT. OUT jack

Remote Control

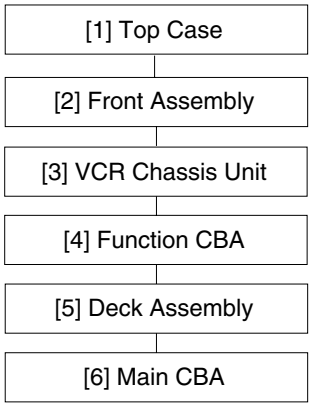


1. POWER button
2. NUMBER buttons
3. MENU button
4. DISPLAY button
5. SLOW button
6. REW button
7. STOP button
8. RECORD button
9. PAUSE/STILL button
10. F.FWD button
11. PLAY button
12. COUNTER/MEMORY button
13. EXIT/RESET button
14. SEARCH MODE button
15. CHANNEL buttons
16. VCR/TV button

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



2. Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[1]	Top Case	1	3(S-1)	-
[2]	Front Assembly	2	*3(L-1),*4(L-2)	-
[3]	VCR Chassis Unit	3	*(L-3), 5(S-2)	1
[4]	Function CBA	4	Desolder	-
[5]	Deck Assembly	4,5	3(S-3), Desolder	2,3
[6]	Main CBA	4,5	----------	-
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)

(1): Identification (location) No. of parts in the figures

(2): Name of the part

(3): Figure Number for reference

(4): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw,
CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5): Refer to “Reference Notes.”

Reference Notes

CAUTION: Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.

1. Release Locking Tab (L-3) and remove five Screws (S-2). Then slowly lift the VCR Chassis Unit (Deck Assembly, Function CBA and Main CBA) up.
2. When reassembling, solder wire jumpers as shown in Fig. D4.
3. Before installing the Deck Assembly, be sure to place the pin of LD-SW on Main CBA as shown in Fig. D5. Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of LD-SW, the shaft of Cam Gear with the hole of LD-SW as shown in Fig. D5.

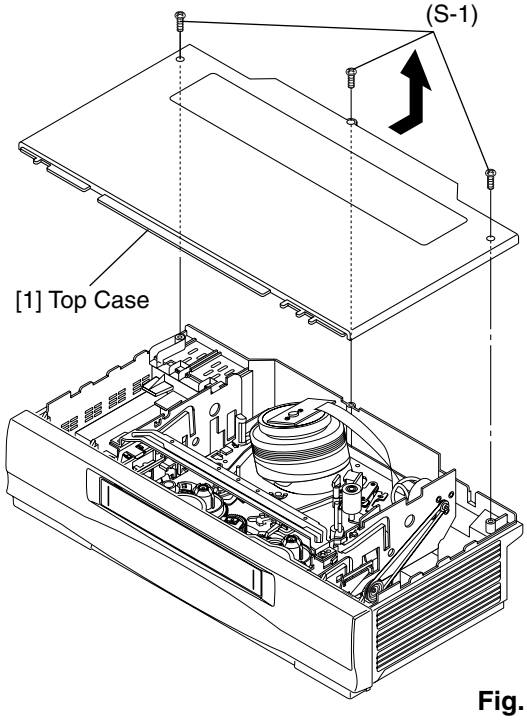


Fig. D1

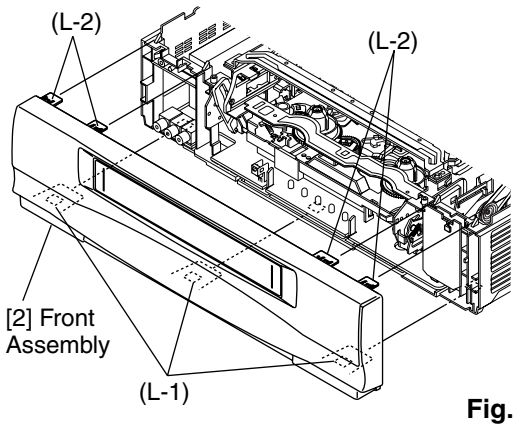


Fig. D2

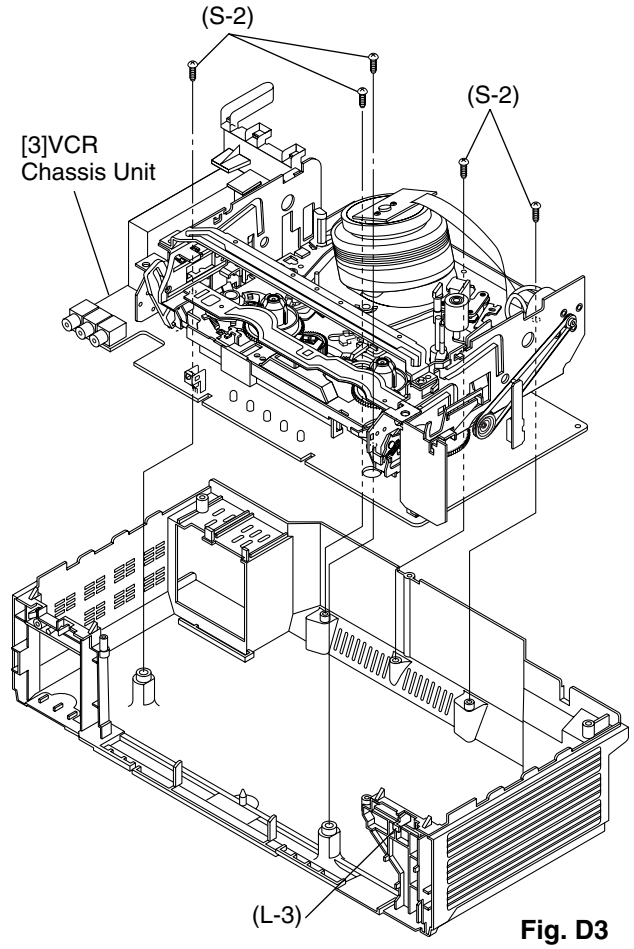
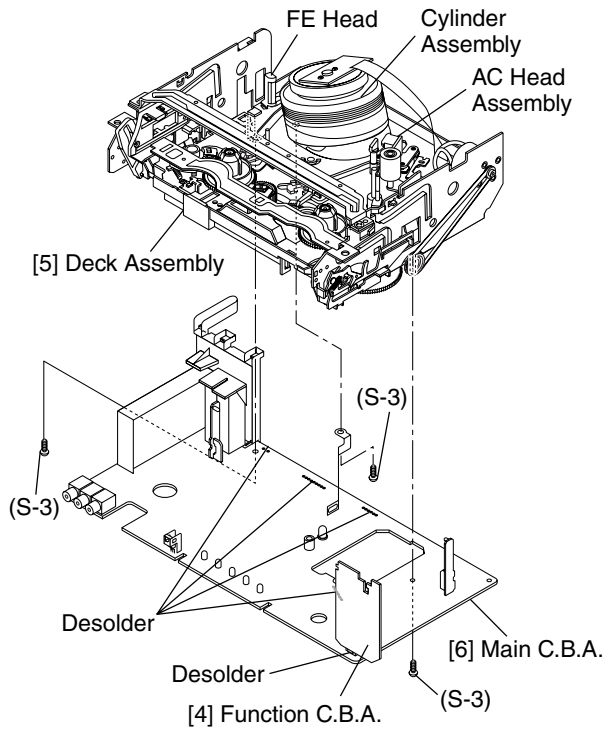
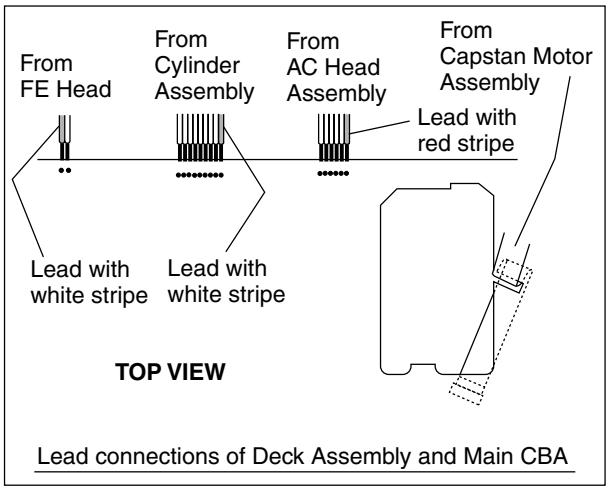


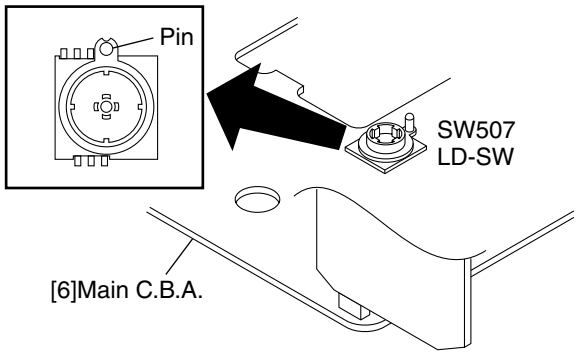
Fig. D3





Lead connections of Deck Assembly and Main CBA

Fig. D4


Pin
SW507
LD-SW
[6]Main C.B.A.

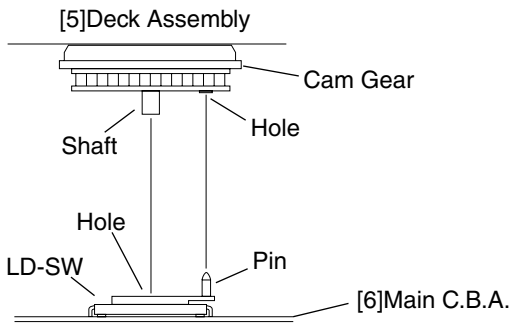

[5]Deck Assembly
Cam Gear
Hole
Shaft
Hole
LD-SW
Pin
[6]Main C.B.A.

Fig. D5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is an abbreviation for "Circuit Board Assembly."

NOTE:

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either "▼" or "▲" button on the remote control unit first, then the "PLAY" button (Front Panel only).

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50V/Div.,
   F-Range: DC~AC-20MHz
2. Alignment Tape (FL8A)

Head Switching Position Adjustment

Purpose:

To determine the Head Switching point during playback.

Symptom of Misadjustment:

May cause Head Switching noise or vertical jitter in the picture.

Test point	Adj.Point	Mode	Input
TP751(V-OUT) TP302(RF-SW) J177(GND)	VR501 (Switching Point) (MAIN CBA)	PLAY (SP)	-----
Tape	**Measurement Equipment**	**Spec.**	
FL8A	Oscilloscope	6.5H±1H (412.7μs±60μs)	

Connections of Measurement Equipment

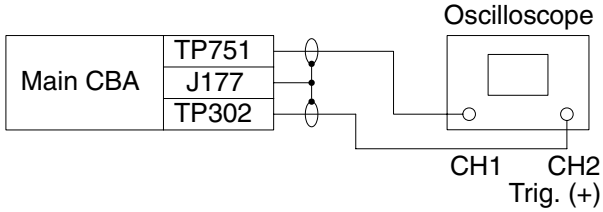
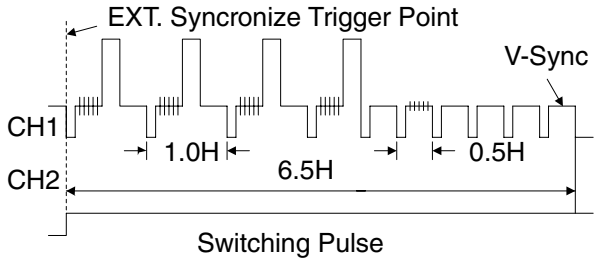


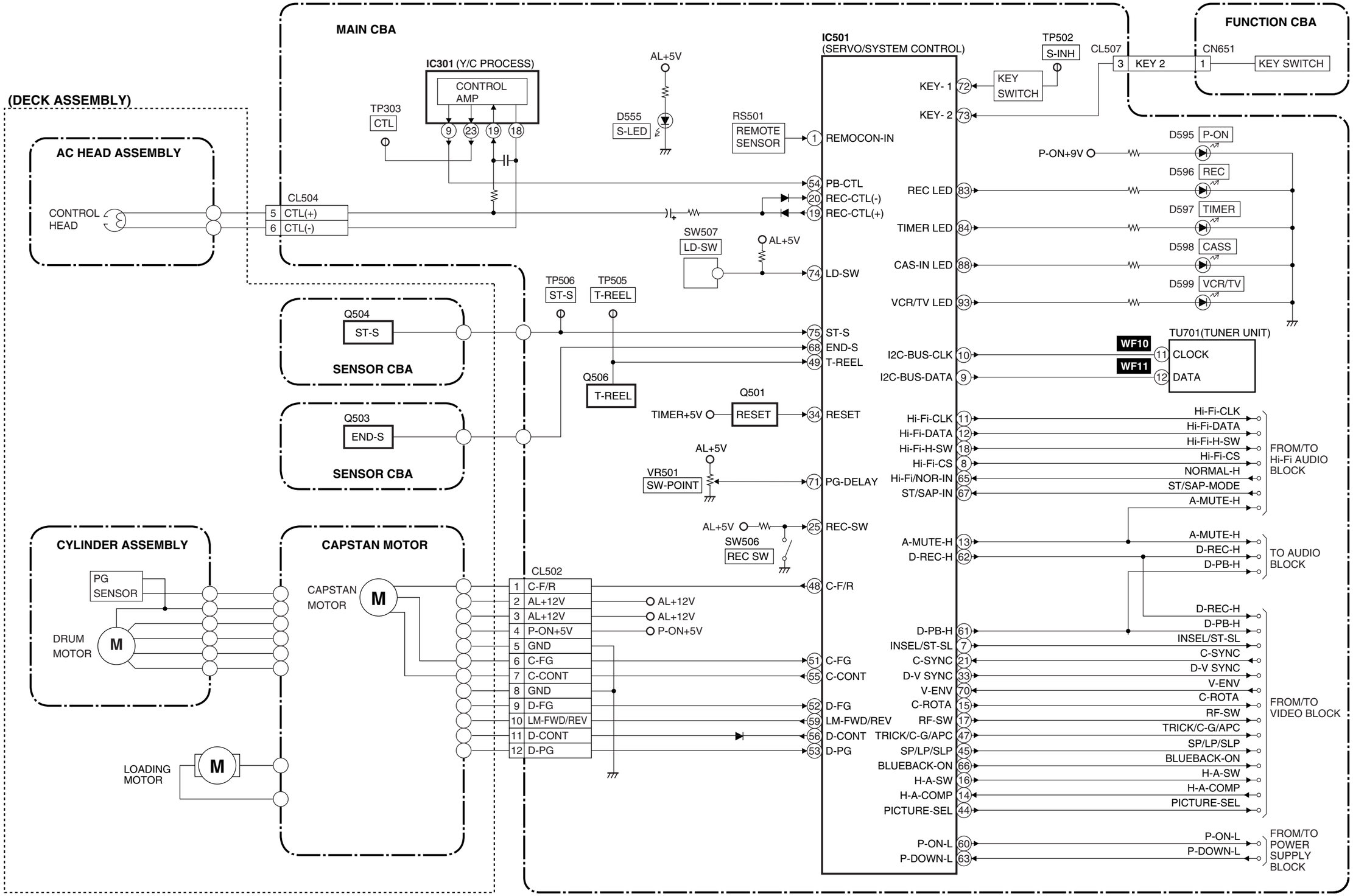
Figure 1



Reference Notes:

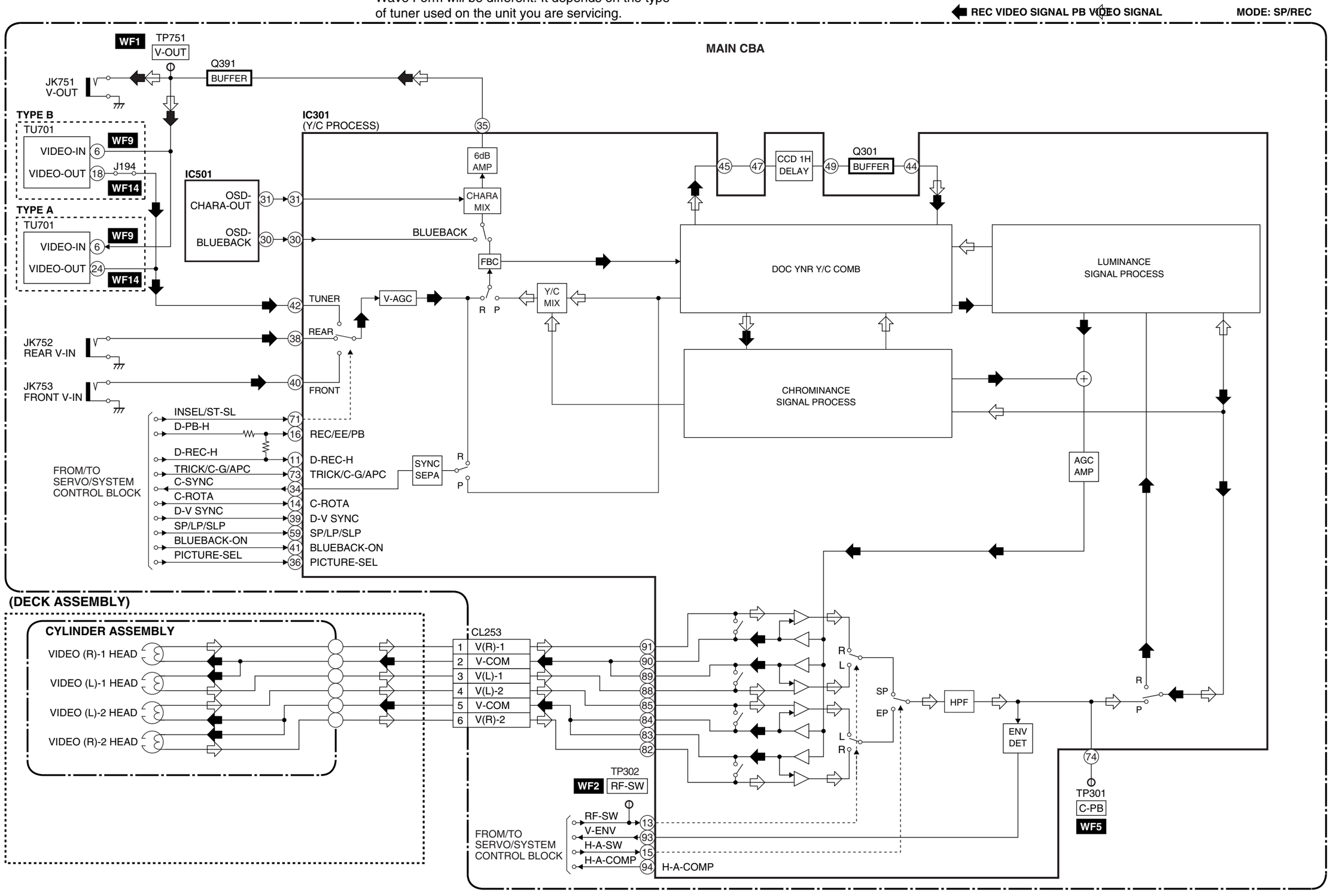
Play back the Alignment tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H(412.7μs) delayed position from the rising edge of the CH2 head switching pulse waveform.

BLOCK DIAGRAMS



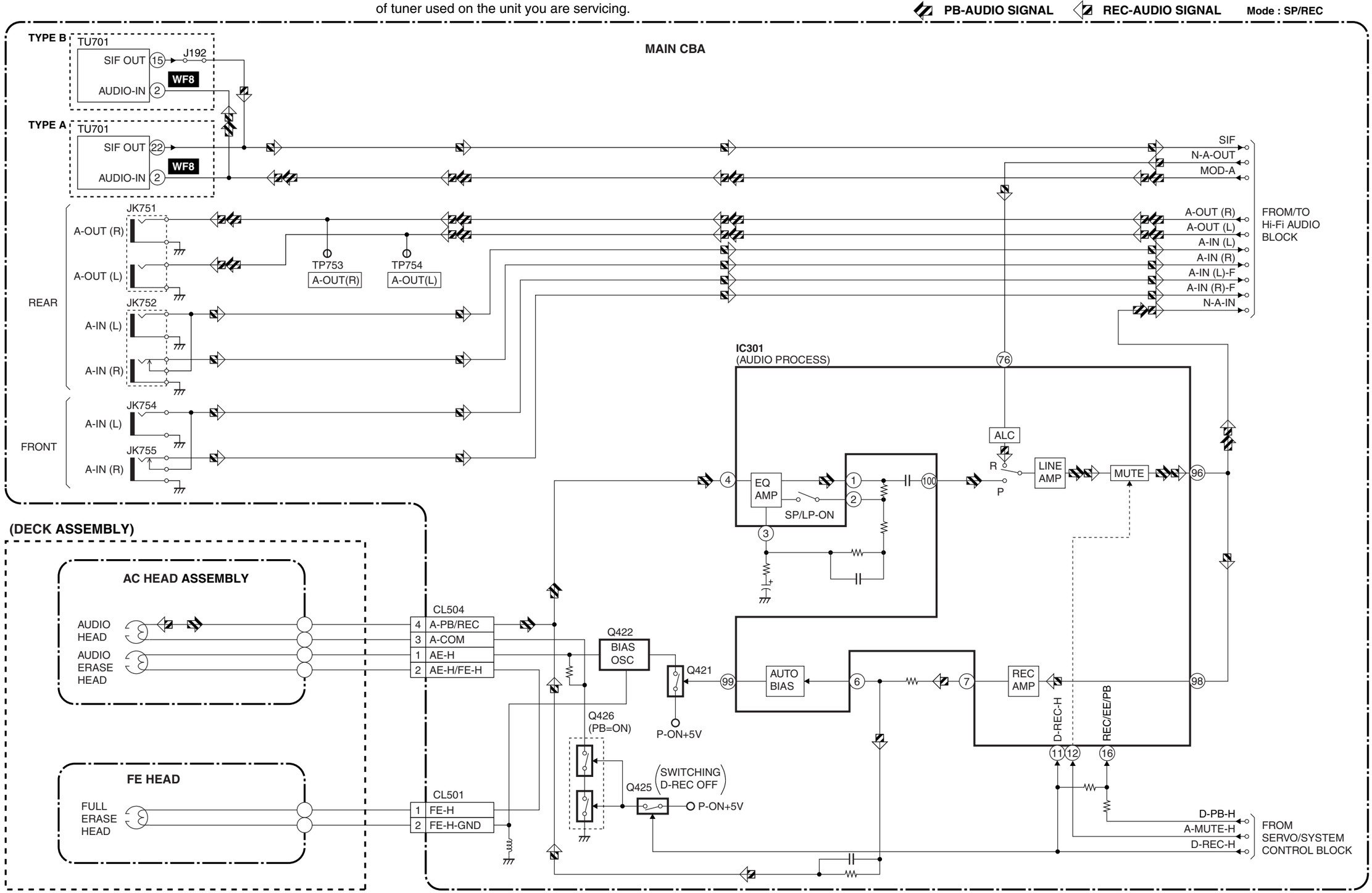
Video Block Diagram

NOTE: The Tuner Unit (TU701) is either type A or type B.
Wave Form will be different. It depends on the type
of tuner used on the unit you are servicing.

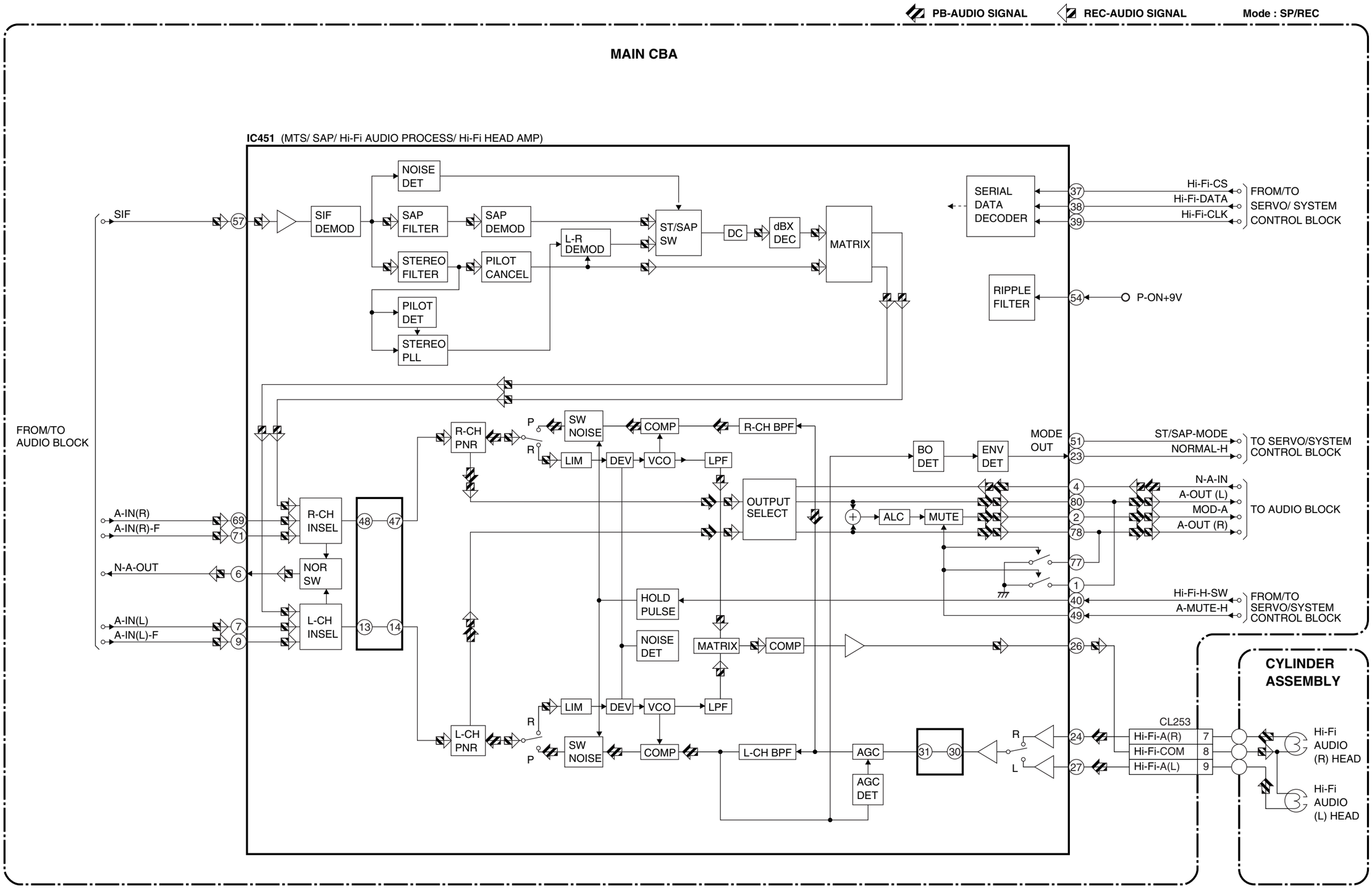


Audio Block Diagram

NOTE: The Tuner Unit (TU701) is either type A or type B.
Wave Form will be different. It depends on the type
of tuner used on the unit you are servicing.



Hi-Fi Audio Block Diagram

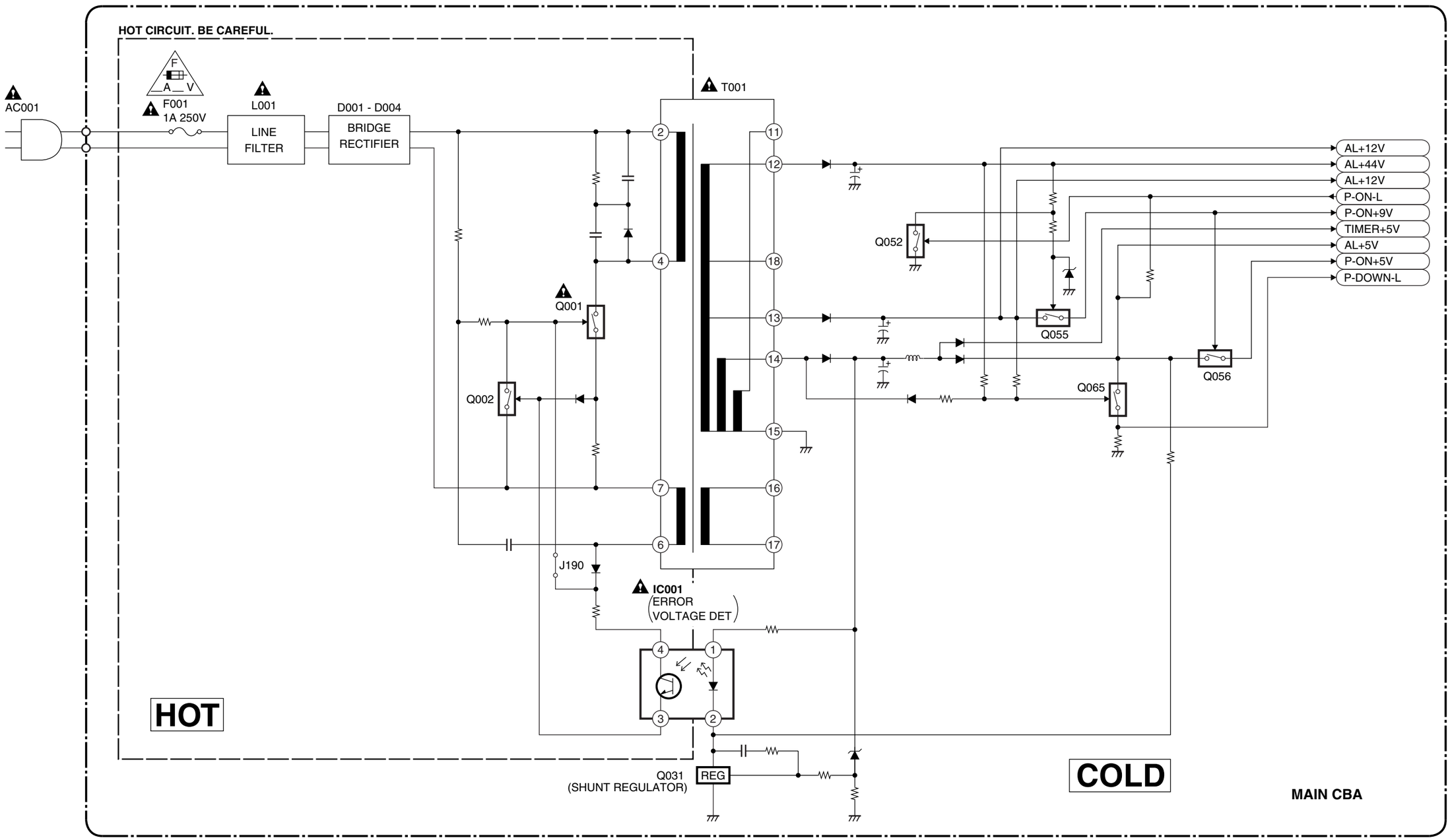


Power Supply Block Diagram

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE -REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole reprèsente un fusible à fusion rapide."

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.



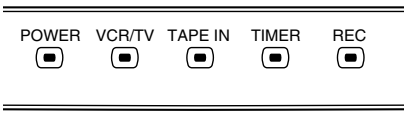
FUNCTION INDICATOR SYMBOLS

Note:

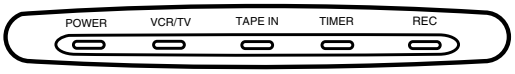
The following symbols will appear on the indicator panel to indicate the current mode or operation of the VCR. On-screen modes will also be momentarily displayed on the tv screen when you press the operation buttons.

Display panel

Model: EWV601A



Model: SSV6001A



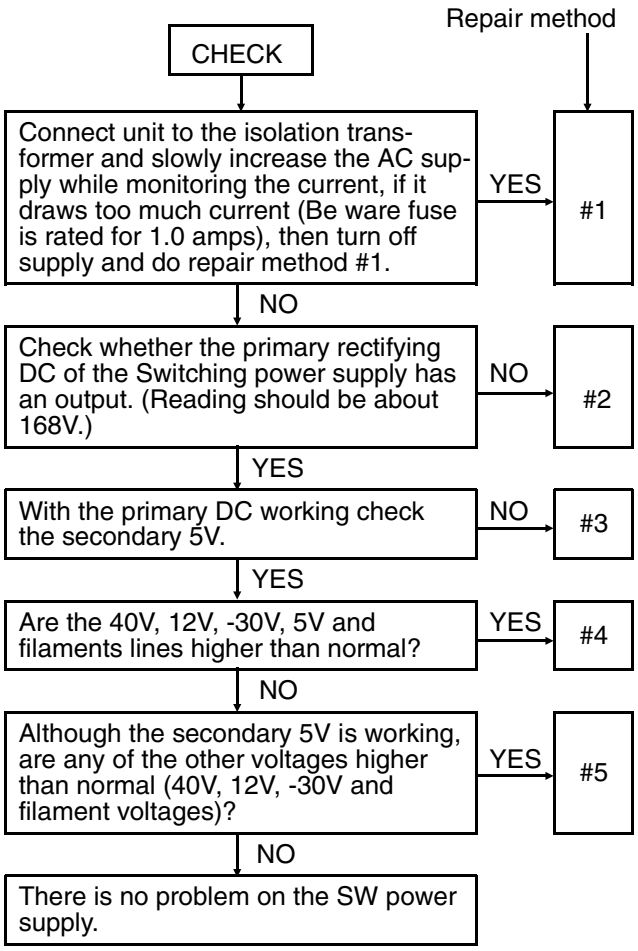
Model: KVS600A

" H "= LED Light on, " L "= LED Light off

Led Mode	Indicator Active
POWER	Power on = " H " Power off = " L "
VCR/TV	VCR mode = " H " TV mode = " L "
TAPE IN 1. When reel and capstan mechanism is not functioning correctly 2. When tape loading mechanism is not functioning correctly 3. When cassette loading mechanism is not functioning correctly 4. When the drum is not working properly	Cassette in = " H " Cassette out = " L " Cassette in — Blinks at 0.8Hz interval Cassette in — Blinks at 1.6Hz interval Cassette in — Blinks at 3.2Hz interval Cassette in — Blinks at 6.4Hz interval
TIMER	Timer stand by = " H " One touch recording = " H " Timer recording = " H " General mode = " L "
REC	REC mode = " H " REC pause — Blinks at 0.8Hz interval General mode = " L "

Power Supply Trouble Shooting Guide

It is highly recommended that a variable isolation transformer which can monitor current be used. (Alternatively a variable AC source which monitors current will do). Read directions below before power is added!


Repair method
CHECK
Connect unit to the isolation transformer and slowly increase the AC supply while monitoring the current, if it draws too much current (Be ware fuse is rated for 1.0 amps), then turn off supply and do repair method #1.
YES
#1
NO
Check whether the primary rectifying DC of the Switching power supply has an output. (Reading should be about 168V.)
NO
#2
YES
With the primary DC working check the secondary 5V.
NO
#3
YES
Are the 40V, 12V, -30V, 5V and filaments lines higher than normal?
YES
#4
NO
Although the secondary 5V is working, are any of the other voltages higher than normal (40V, 12V, -30V and filament voltages)?
YES
#5
NO
There is no problem on the SW power supply.

Repair method #1

(Power must be off)
Short circuit in the secondary side. check diode D013 and {(FIP display model only: D012, D015, D016 and D017) or (LED display model only: D014, D015 and D016)}, switching FET (Q001), control transistor (Q002), diode (D006), and resistor (R014) replace as necessary.
Disconnect 40V diode (D013), 12V diode (D015), 5V diode (D016) and {FIP display model only: -30V diode (D012) and filament voltage diode (D017)}Check the load continuity of 40V line, 12V line, 5V line, -30V line and filament voltage line through a tester (resistance range).
If the tester indicates a lower resistance value around 0 ohm, the line is short-circuited.
Before repairing the switching power supply, find out the short-circuited area of such line and repair it.

If the tester does not indicate any low resistance value (around 0 ohm), no load is short-circuited and there is no problem.

2] Check for any defective parts while the secondary rectifying diodes are disconnected (D013, D015, D016 and {FIP display model only: D012 and D017)} perform a diode check in both forward and reverse directions through a tester.

3] Remove the following components and check for defects: snubber diode (D051), switching FET (Q001), source resistor (R014), control transistor (Q002).

Repair method #2

Check the fuse 1.0A (F001), primary rectifying diodes (D001-D004) as possible problems. Remove the above mentioned parts and check them. The circuit which turns on switching FET (Q001) may be regarded as a possible cause, even if the load at the secondary side is shorted, it can't be detected because switching FET (Q001) isn't operating. Perform check according to the step 1 and 2 of repair method #1 and check the following parts:
(Remove the part from PCB)
Switching FET (Q001), source resistor (R014), gate resistor (R008) and start resistor (R004 and R005).

Repair method #3

A circuit to turn on switching FET (Q001) may not work and this may be regarded as a cause of trouble. Even if the load at the secondary side is short-circuited, it cannot be detected because switching FET (Q001) does not turn on. Therefore, perform check according to the steps 1] and 2] of the repair method #1 and execute the under-mentioned parts breakage check.
(Remove the part from PCB.)
switching FET (Q001), source resistor (R014), control transistor (Q002), gate resistor (R008) and start resistor (R004 and R005).

Repair method #4

The feedback circuit which is monitored by the output of voltage may not work and this may be regarded as a possible cause, remove control transistor Q002 and check for defects. More over, a photo coupler (IC001) and transistor (Q031) may be defective, replace any defective parts with factory originals.

Repair method #5

If the output voltage of the secondary side is slightly high, the line load may be in the "OPEN" state and this may be regarded as a cause of trouble. If there is no output voltage on the secondary side, the rectifying diodes (D013), (D015) and {FIP display model only only: (D012) and (D017)} may be defective.

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

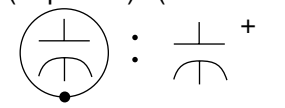
Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 - 80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Z)	+30 - 80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

CBA Symbols

(Top View) (Bottom View)



Electrolytic Capacitor

(Bottom View)

Transistor or Digital Transistor

(Top View)

NPN Transistor

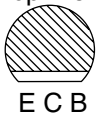
(Top View)

PNP Transistor

(Top View)

NPN Digital Transistor

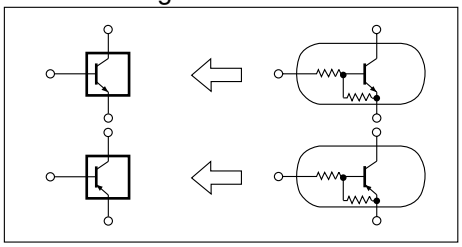
(Top View)



PNP Digital Transistor

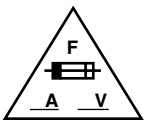
Schematic Diagram Symbols

Digital Transistor



LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:**



FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

This symbol means fast operating fuse.
Ce symbole reprèsente un fusible à fusion rapide.

2. **CAUTION:**

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. **Note:**

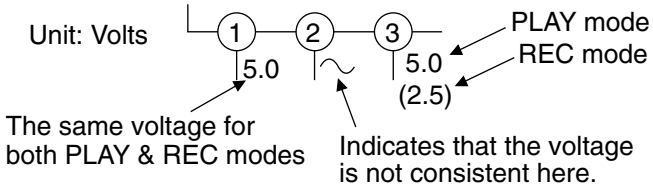
(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Wire Connectors

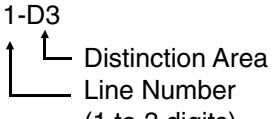
(1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).
(2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Mode: SP/REC

6. Voltage indications for PLAY and REC modes on the schematics are as shown below:

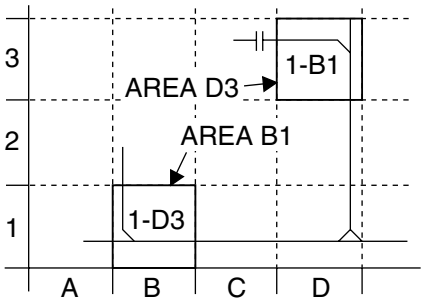


7. How to read converged lines



Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



8. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

Main 1/4 Schematic Diagram

★1 Note:
When it is necessary to replace one or more of the following Diodes, all five should be replaced: D595, D596, D597, D598, D599.

REC Video Signal
REC Audio Signal
PB Video Signal
PB Audio Signal

MAIN CBA
SYSCON/TIMER/SERVO BLOCK

IC501
DSZAA0RM810B
(SYSTEM CONTROL MICROPROCESSOR)

SWITCHES ARE KSM0614B OR SKQSAF001A.

Main 1/4 Schematic Diagram

Ref. NO	Position
ICS	
IC501	D-3
TRANSISTORS	
Q501	E-2
Q503	A-3
Q504	A-2
Q506	B-2
CONNECTORS	
CL501	F-4
CL502	F-5
CL504	F-4
CL507	A-4
VARIABLE RESISTORS	
VR501	A-3
TEST POINTS	
TP502	D-4
TP505	B-2
TP506	B-3

Main 2/4 Schematic Diagram

REC Video Signal
REC Audio Signal
PB Video Signal
PB Audio Signal

VIDEO/AUDIO/H-AMP BLOCK
MAIN CBA
TUNER BLOCK
JACK BLOCK

TYPE A
TU701 UTUNNTUSP020

TYPE B
TU701 UTUNNTUAL030

★2 Note:
The Tuner Unit (TU701) is either type A or type B.
These two types are exchangeable and can be equally used whichever the model is. The difference between type A and type B is shown in the table below.

	TU701	J192	J194	J215
TYPE A	UTUNNTUSP020	NU	NU	NU
TYPE B	UTUNNTUAL030	WIRE	WIRE	WIRE

NU: Not Used

Main 2/4 Schematic Diagram

Ref.NO	Position
ICS	
IC301	H-2
TRANSISTORS	
Q301	J-3
Q302	J-4
Q303	J-4
Q391	J-2
Q421	H-2
Q422	G-1
Q425	H-1
Q426	G-1
CONNECTORS	
CL253	G-5
TEST POINTS	
TP301	H-4
TP302	H-1
TP303	I-2
TP751	L-2
TP753	L-2
TP754	L-2

Main 3/4 Schematic Diagram

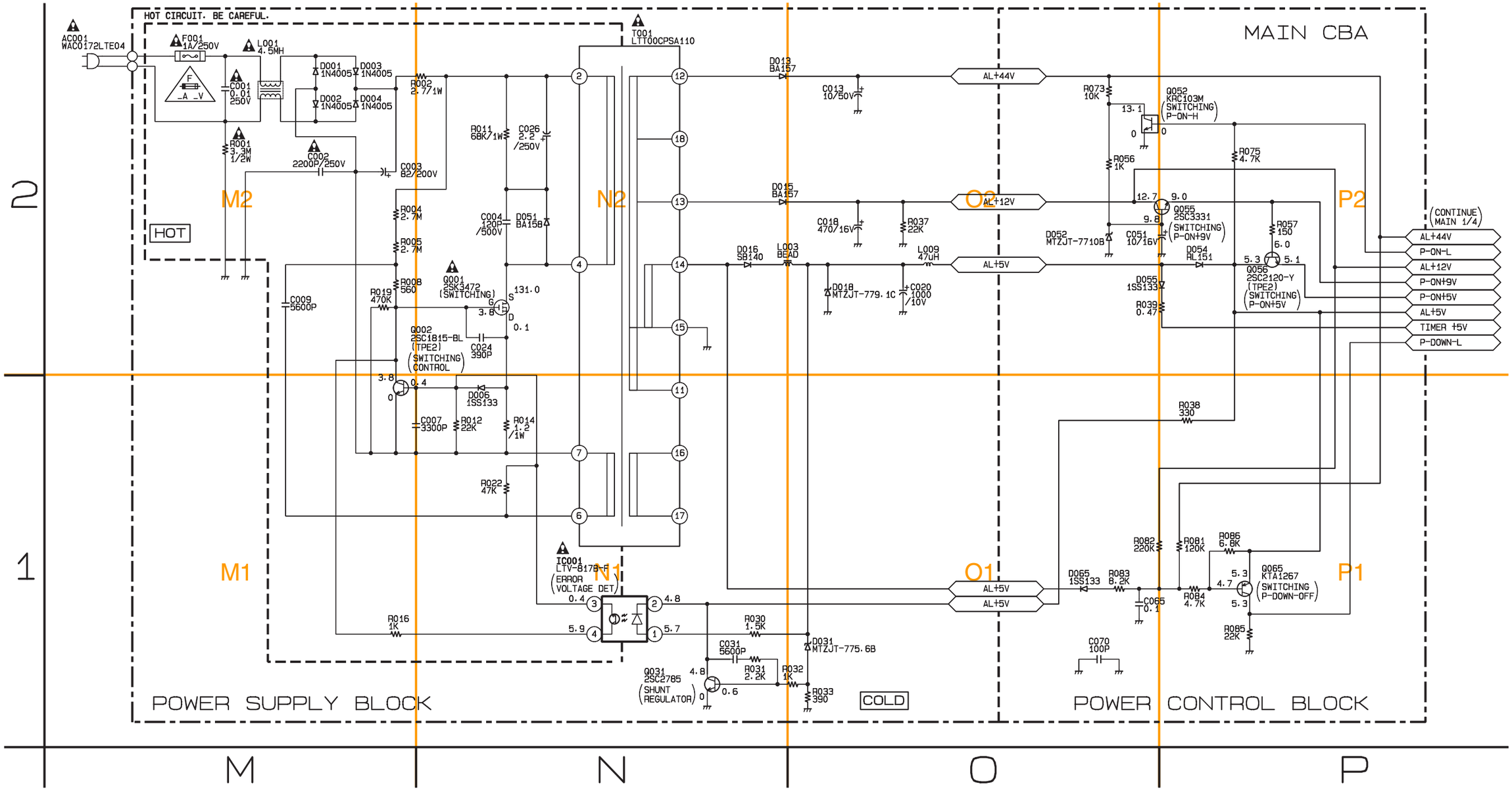
CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole reprèsente un fusible à fusion rapide."

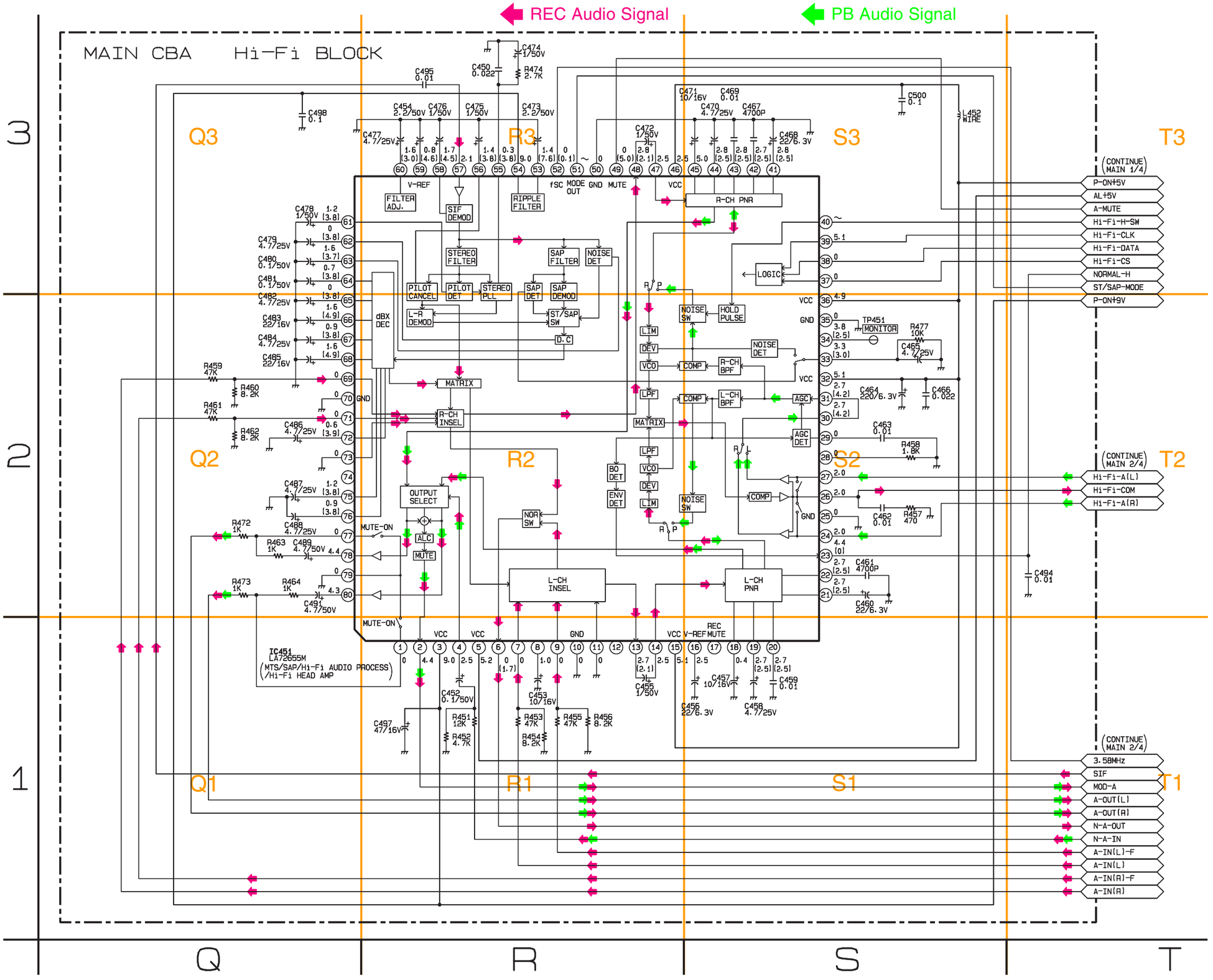
Main 3/4 Schematic Diagram

Ref.NO	Position
ICS	
IC001	N-1
TRANSISTORS	
Q001	N-2
Q002	M-2
Q031	N-1
Q052	P-2
Q055	P-2
Q056	P-2
Q065	P-1

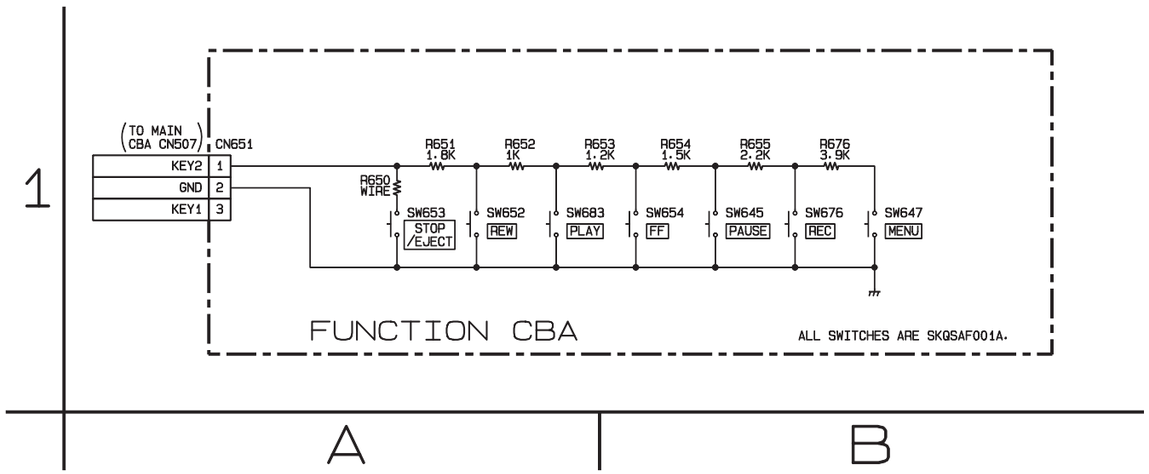


Main 4/4 Schematic Diagram

REC Video Signal
REC Audio Signal
PB Video Signal
PB Audio Signal

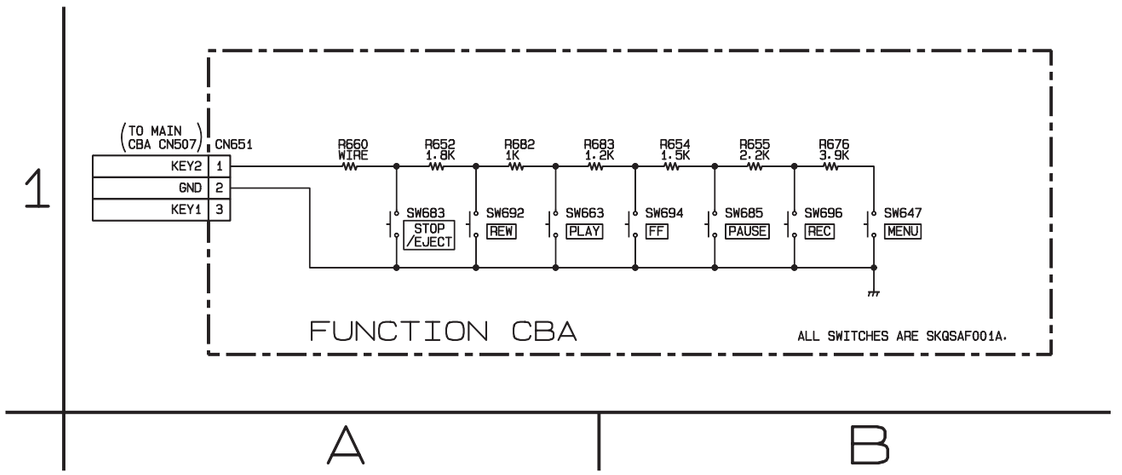


Function Schematic Diagram (EWV601A)



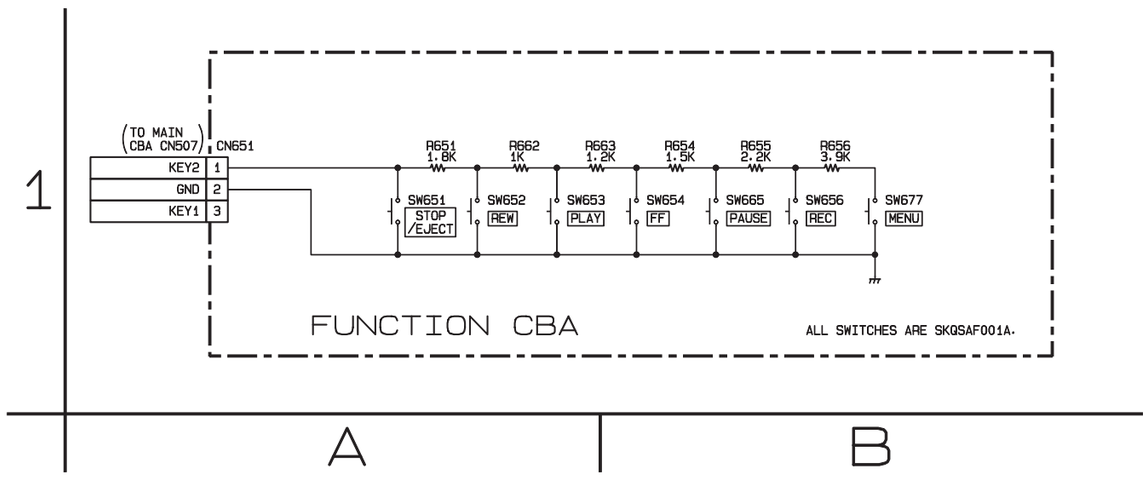
HB4J0SCF

Function Schematic Diagram (SSV6001A)



HB4L0SCF

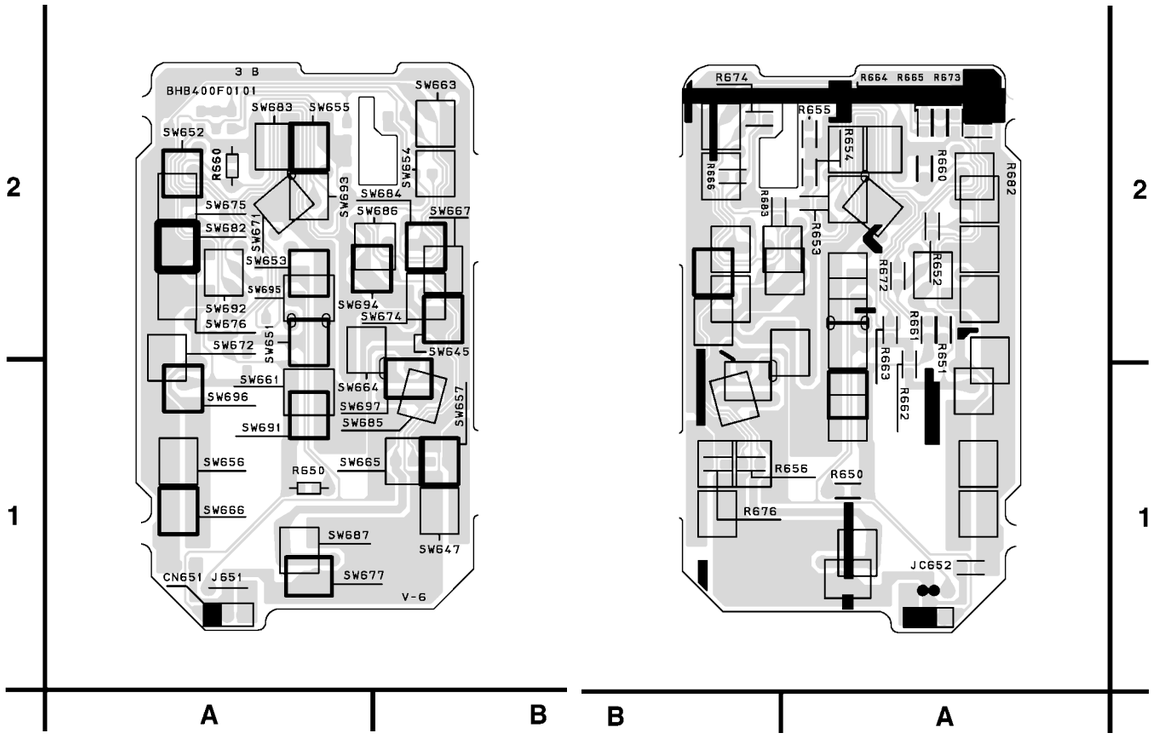
Function Schematic Diagram (KVS600A)



HB431SCF

Function CBA Top View

Function CBA Bottom View

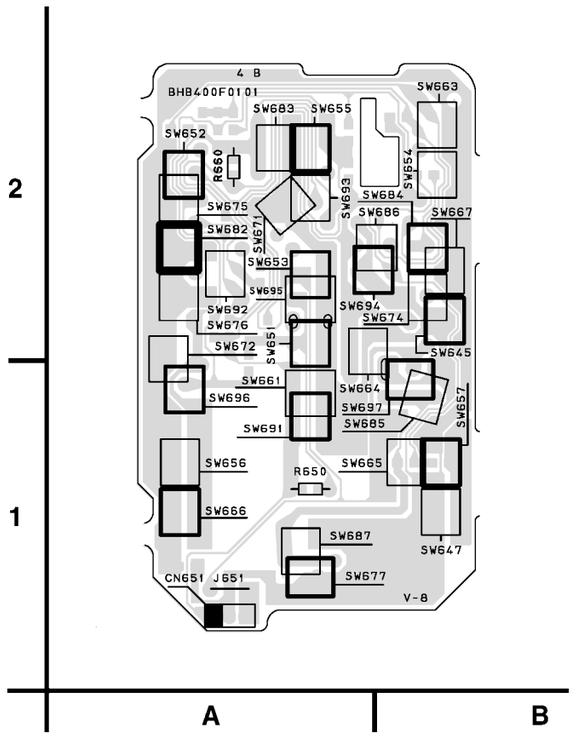


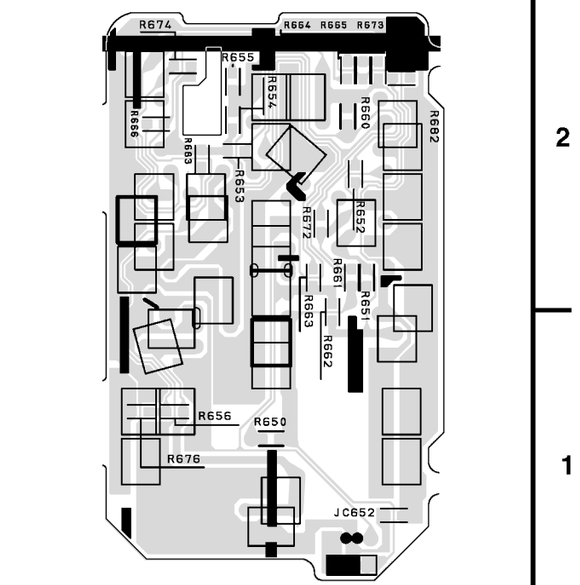
BHB400F01013-B

Function CBA Top View

Function CBA Bottom View

NOTE :
Either BHB400F01013, BHB400F01014
is used for the Function CBA in this S/M.





BHB400F01014-B

Main CBA Top View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

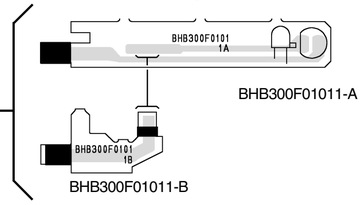
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole reprèsente un fusible à fusion rapide."

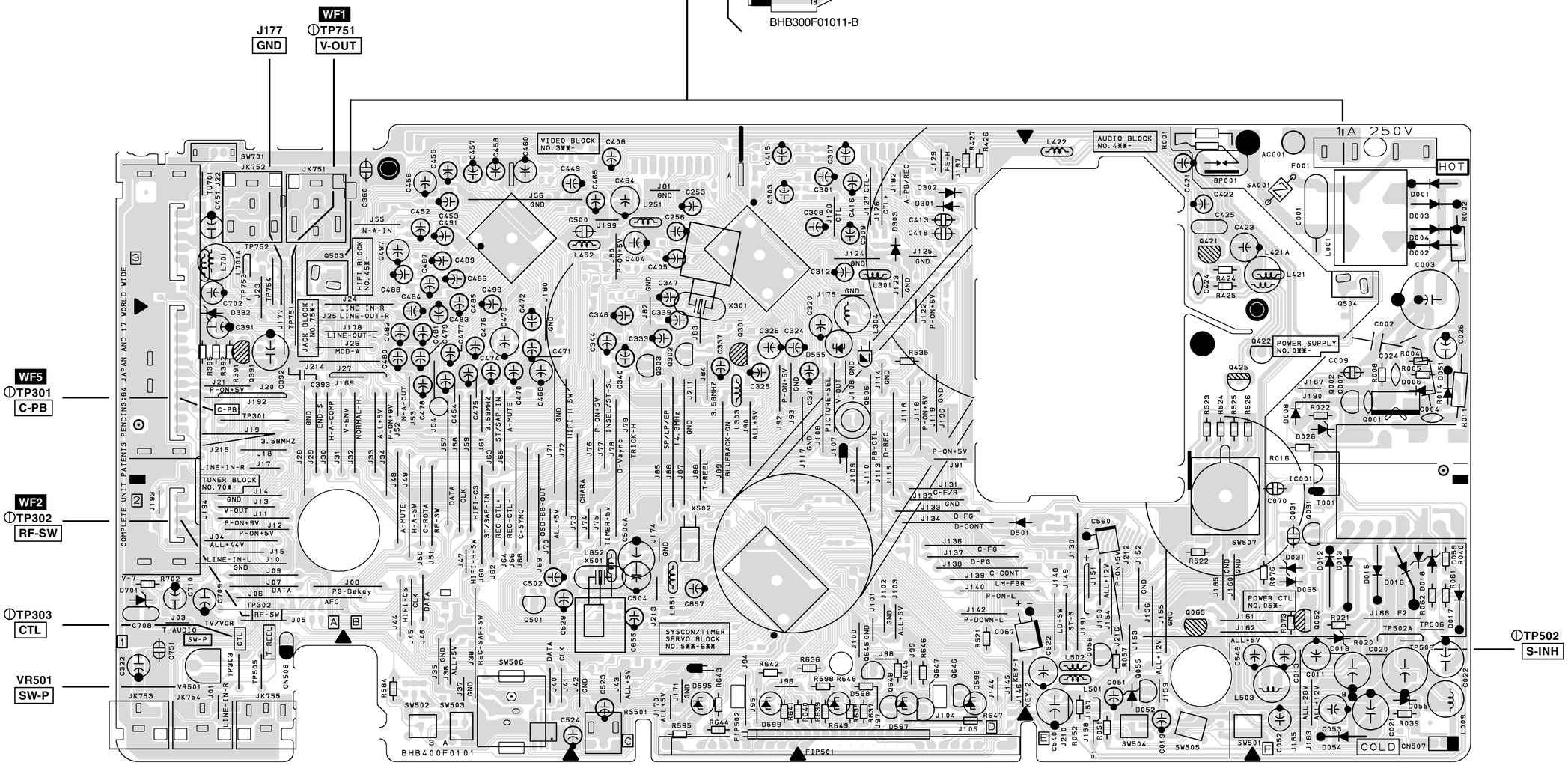
BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

NOTE :
Either BHB400F01013, BHB400F01014 is used for the Main CBA in this S/M.

Sensor CBA Top View





Main CBA Bottom View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

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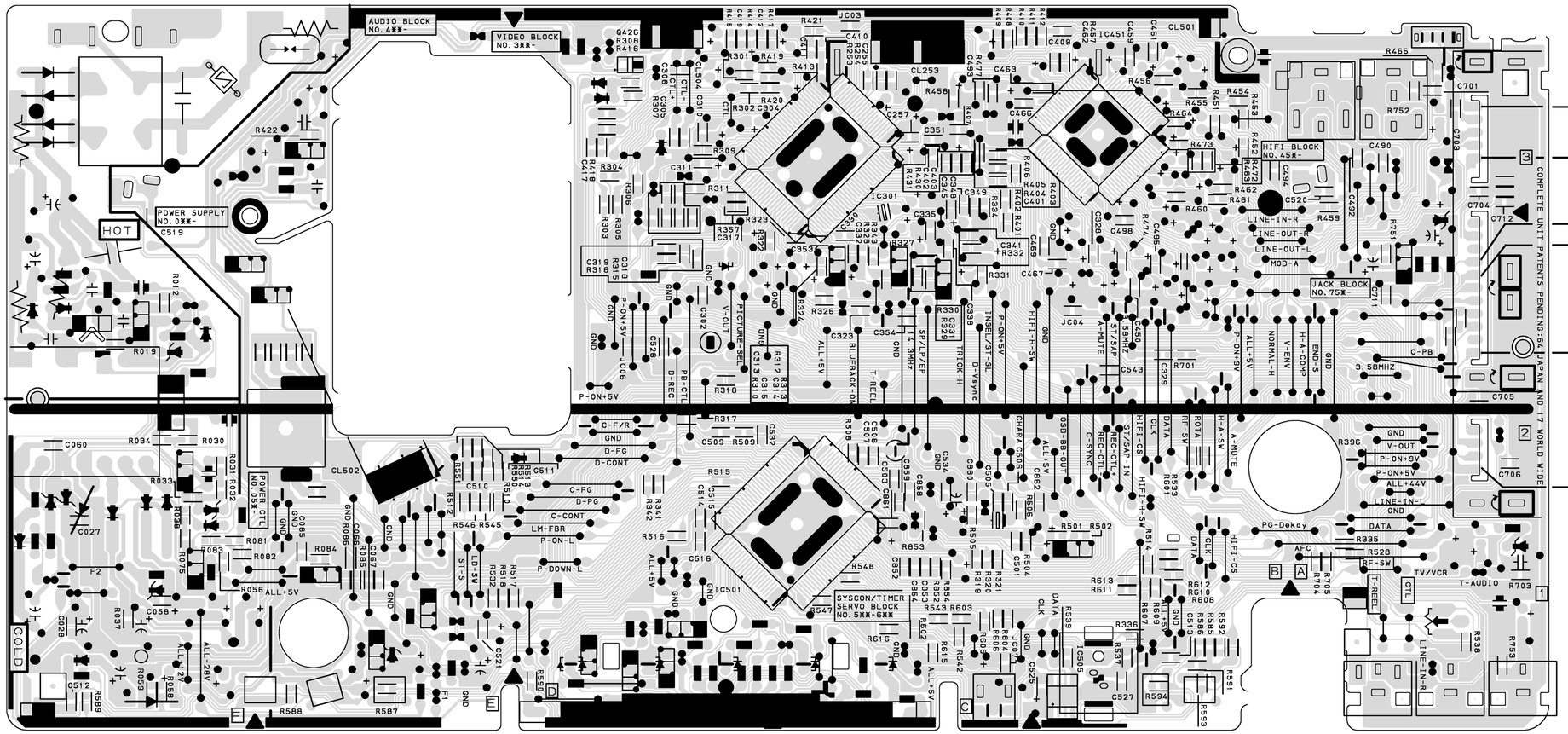
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

NOTE :
Either BHB400F01013, BHB400F01014 is used for the Main CBA in this S/M.

Note:
The Tuner Unit (TU701) is either type A or type B. Wave Form will be different. It depends on the type of tuner used on the unit you are servicing.



Main CBA

Ref.NO	Position
ICS	
IC001	F-2
IC301	C-3
IC451	B-3
IC501	D-1
TRANSISTORS	
Q001	F-2
Q002	F-2
Q031	F-2
Q052	F-1
Q055	E-1
Q056	E-1
Q065	E-1
Q301	C-2
Q302	C-2
Q303	C-2
Q391	A-2
Q421	E-3
Q422	F-2
Q425	E-2
Q426	D-3
Q501	B-1
Q503	A-3
Q504	F-3
Q506	D-2
CONNECTORS	
CL253	C-3
CL501	B-3
CL502	E-2
CL504	E-4
CL507	F-1
VARIABLE RESISTORS	
VR501	A-1
TEST POINTS	
TP301	A-2
TP302	A-1
TP303	A-1
TP502	F-1
TP505	A-1
TP506	F-1
TP751	A-2
TP753	A-3
TP754	A-3

Main CBA Top View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

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NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

NOTE :
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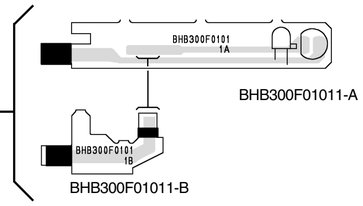
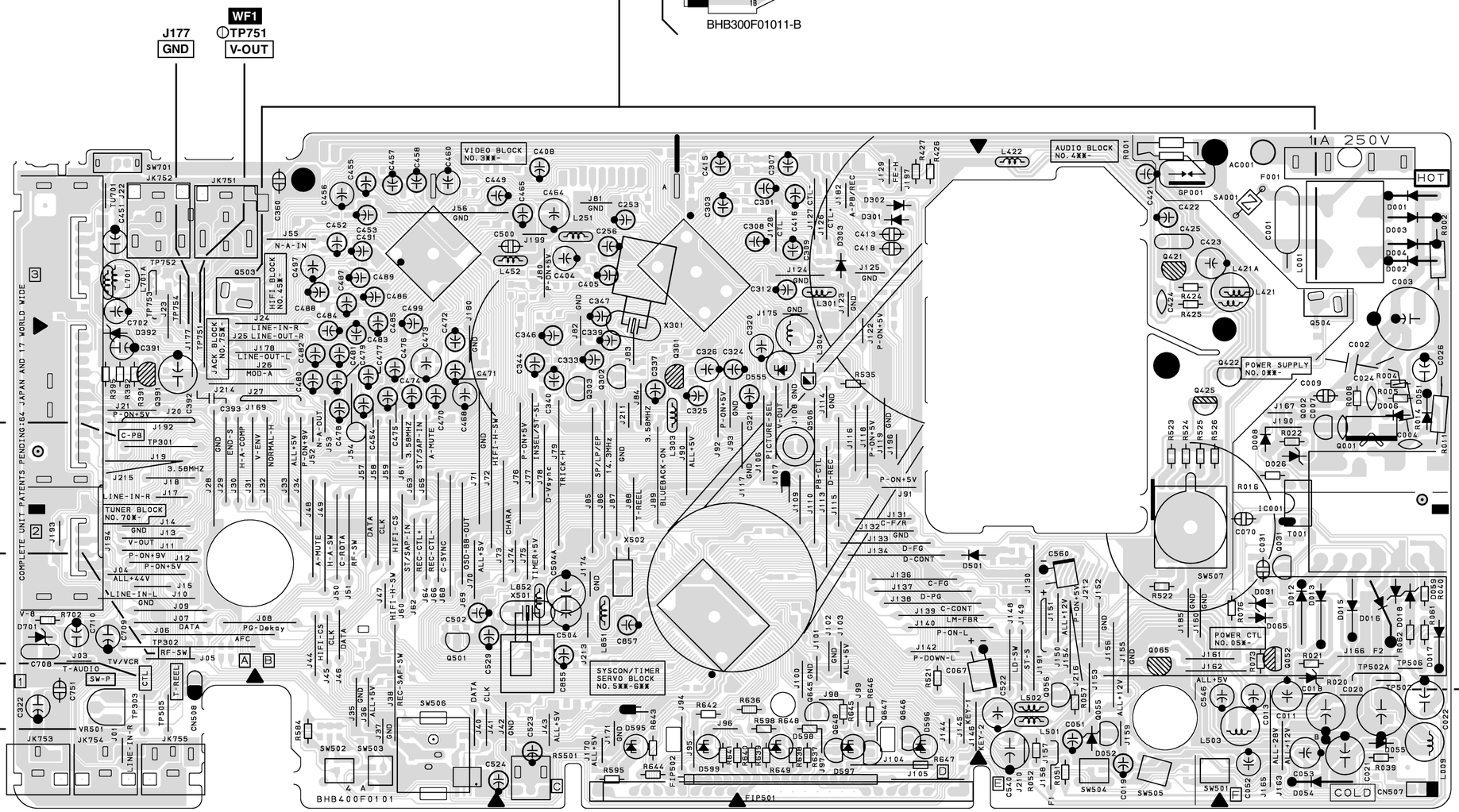
is used for the Main CBA in this S/M.

Sensor CBA Top View





Main CBA Bottom View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

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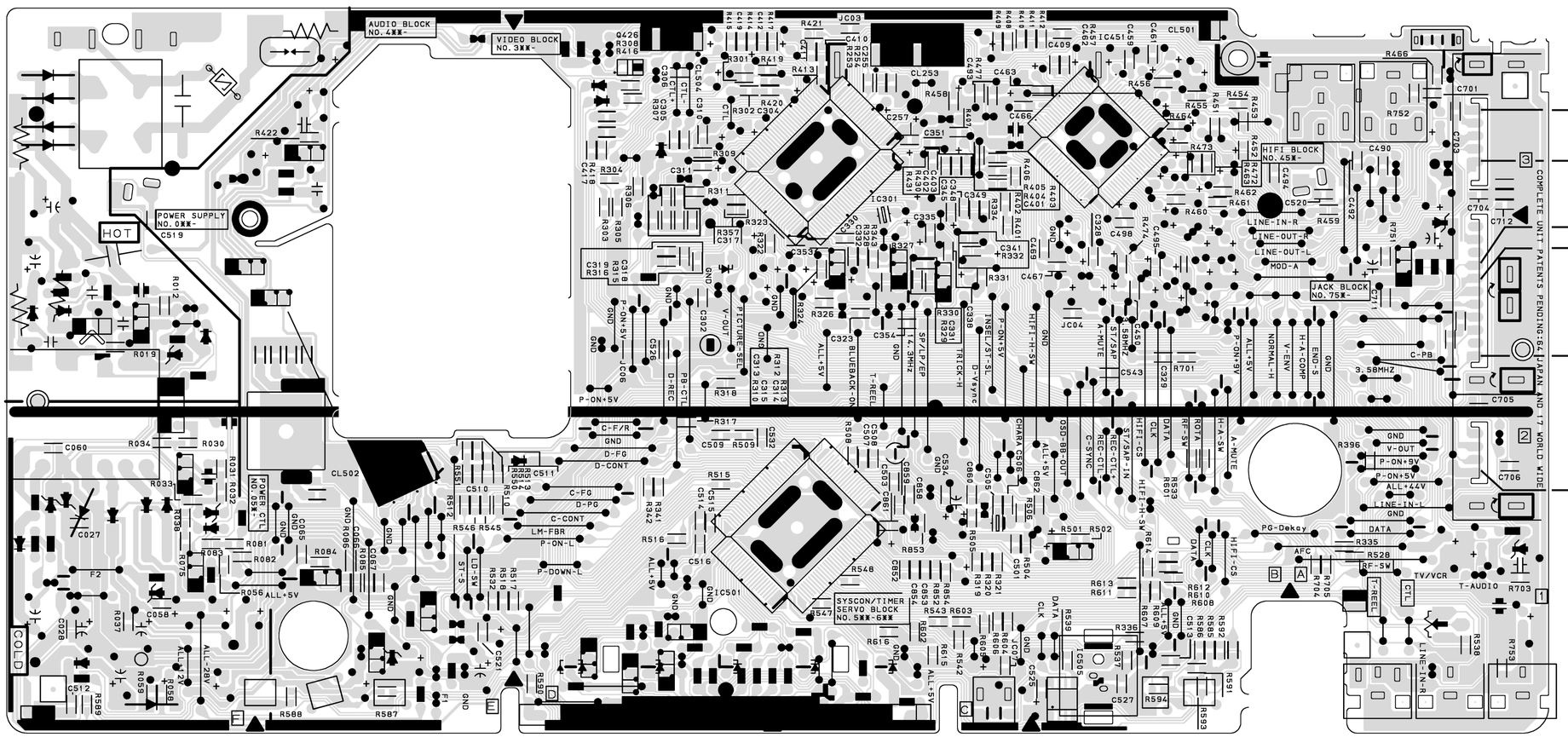
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

NOTE :
Either BHB400F01013, BHB400F01014 is used for the Main CBA in this S/M.

Note:
The Tuner Unit (TU701) is either type A or type B. Wave Form will be different. It depends on the type of tuner used on the unit you are servicing.



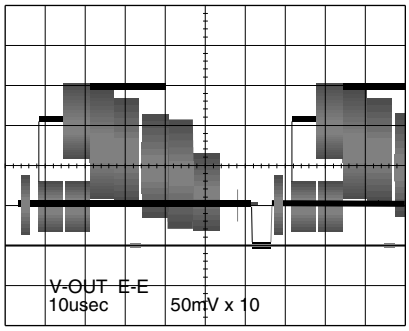
Main CBA

Ref.NO	Position
ICS	
IC001	F-2
IC301	C-3
IC451	B-3
IC501	D-1
TRANSISTORS	
Q001	F-2
Q002	F-2
Q031	F-2
Q052	F-1
Q055	E-1
Q056	E-1
Q065	E-1
Q301	C-2
Q302	C-2
Q303	C-2
Q391	A-2
Q421	E-3
Q422	F-2
Q425	E-2
Q426	D-3
Q501	B-1
Q503	A-3
Q504	F-3
Q506	D-2
CONNECTORS	
CL253	C-3
CL501	B-3
CL502	E-2
CL504	E-4
CL507	F-1
VARIABLE RESISTORS	
VR501	A-1
TEST POINTS	
TP301	A-2
TP302	A-1
TP303	A-1
TP502	F-1
TP505	A-1
TP506	F-1
TP751	A-2
TP753	A-3
TP754	A-3

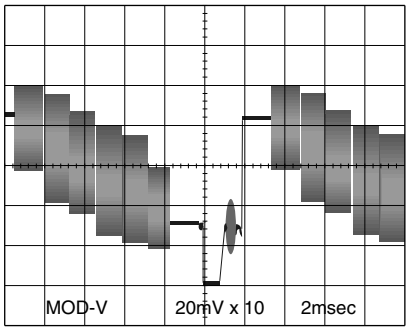
WAVEFORMS

NOTE:
The Tuner Unit (TU701) is either type A or type B. Wave Form will be different. It depends on the type of tuner used on the unit you are servicing.

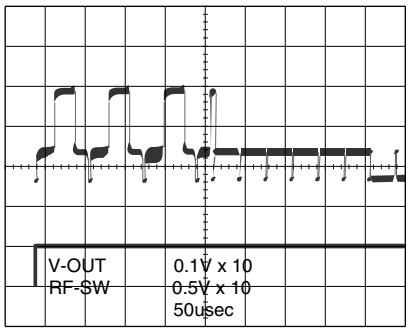
WF 1



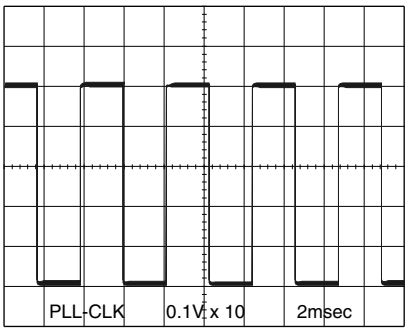
WF9



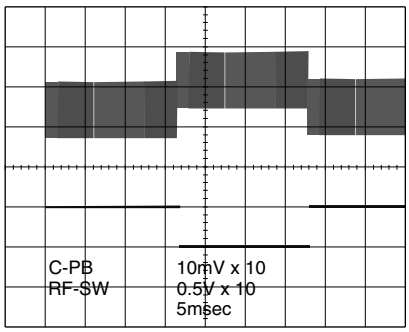
WF1 UPPER **WF2** LOWER



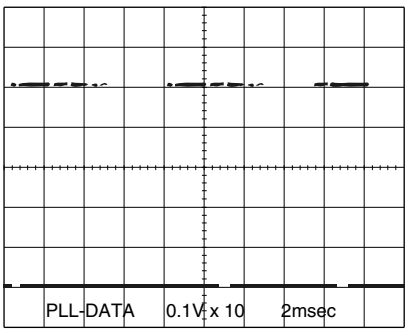
WF10



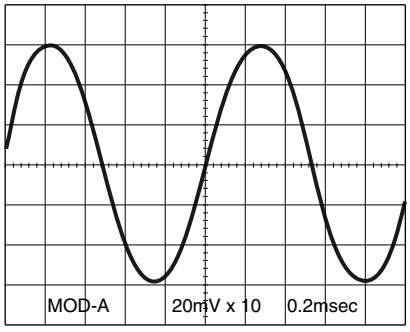
WF5



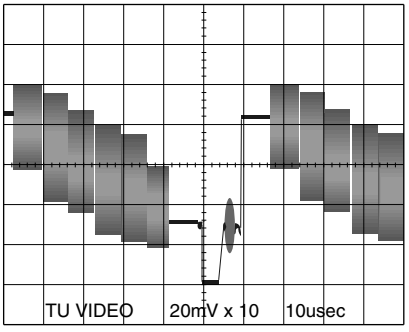
WF11



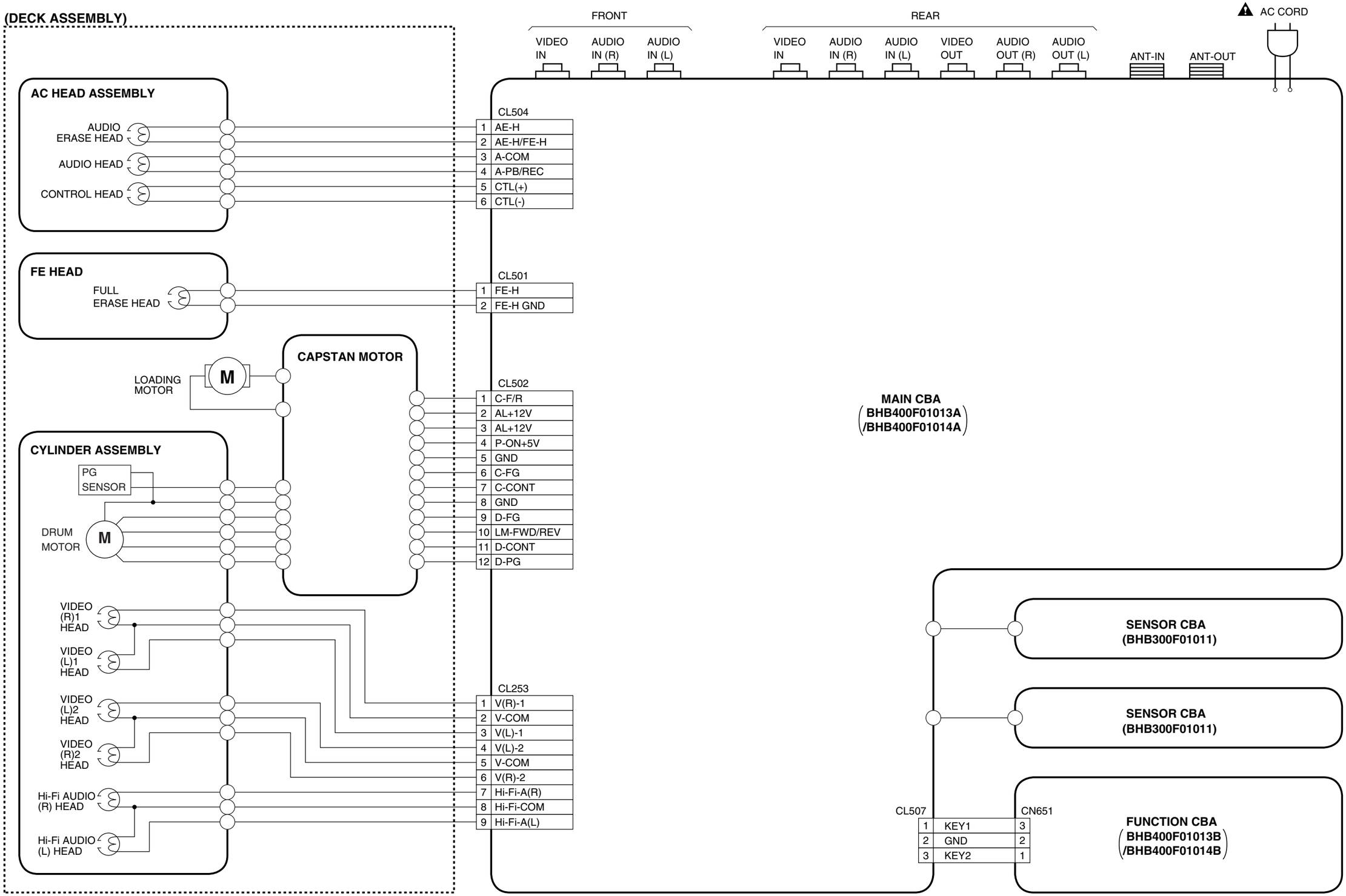
WF8



WF14



WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Mode SW : LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol
3.76V~4.50V (4.12V)	EJ
4.51V~5.00V (5.00V)	CL
0.00V~0.25V (0.00V)	SB
1.06V~1.50V (1.21V)	TL
0.66V~1.05V (0.91V)	FB
1.99V~2.60V (2.17V)	SF
1.51V~1.98V (1.80V)	AU
3.20V~3.75V (3.40V)	AL
0.26V~0.65V (0.44V)	SS
4.51V~5.00V (5.00V)	GC
2.61V~3.19V (2.97V)	RS

Note:

Note :

EJ ⟶ RS: Loading FWD (LM-FWD “H”, LM-REV “L”)
RS ⟶ EJ: Loading REV (LM-FWD “L”, LM-REV “H”)
Stop (A) = Loading
Stop (B) = Unloading

Note :

Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop(B)
TL	Stop(B) ~ Brake Cancel
FB	Brake Cancel
SF	~ Stop(A)
AU	Stop(A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ Capstan Reversal
GC	Capstan Reversal ~ RS (REW Search)
RS	RS (REW Search)

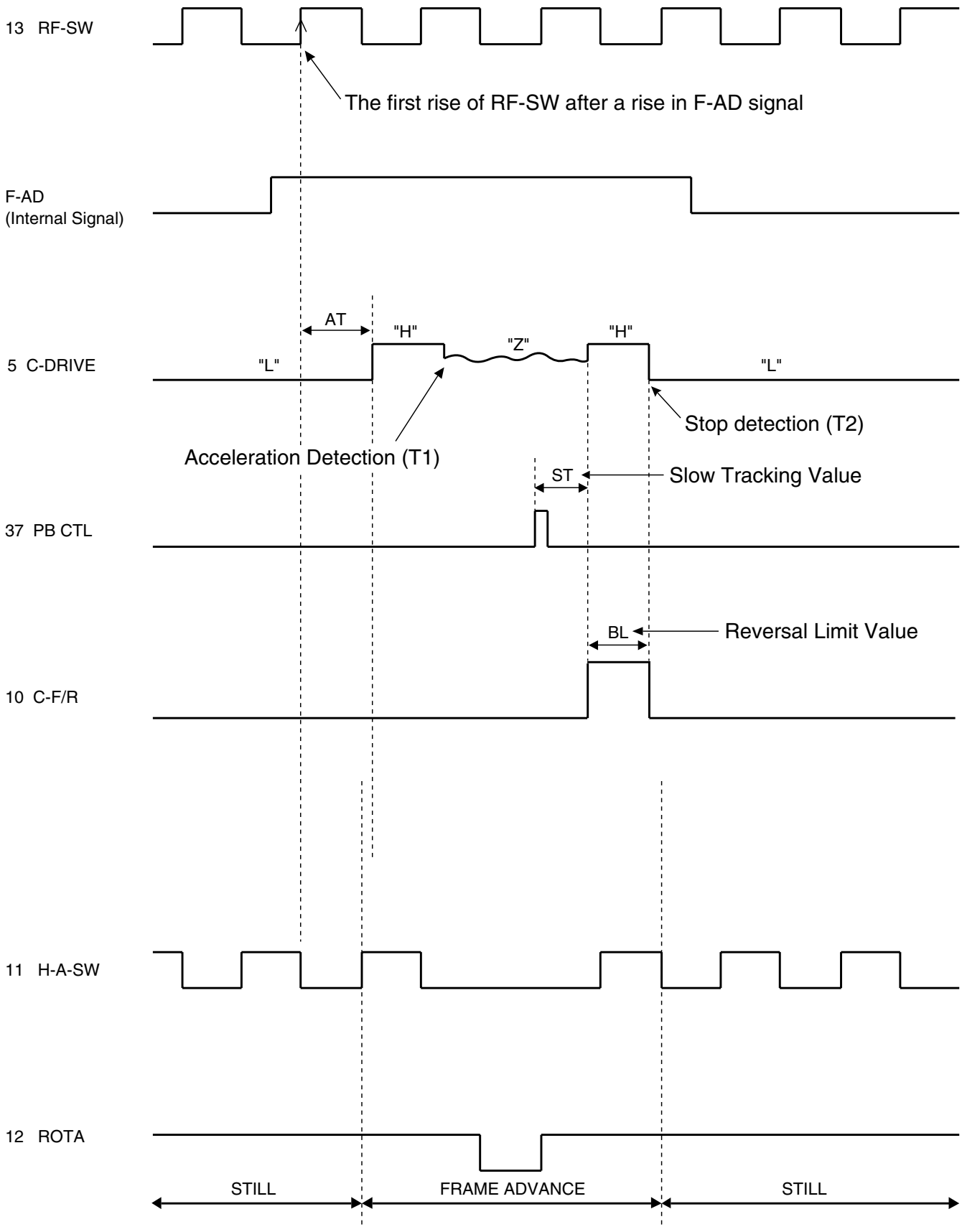

13 RF-SW
The first rise of RF-SW after a rise in F-AD signal
F-AD
(Internal Signal)
AT
"H"
"Z"
"H"
5 C-DRIVE
"L"
"L"
Stop detection (T2)
Acceleration Detection (T1)
ST
Slow Tracking Value
37 PB CTL
BL
Reversal Limit Value
10 C-F/R
11 H-A-SW
12 ROTA
STILL
FRAME ADVANCE
STILL

Fig. 1

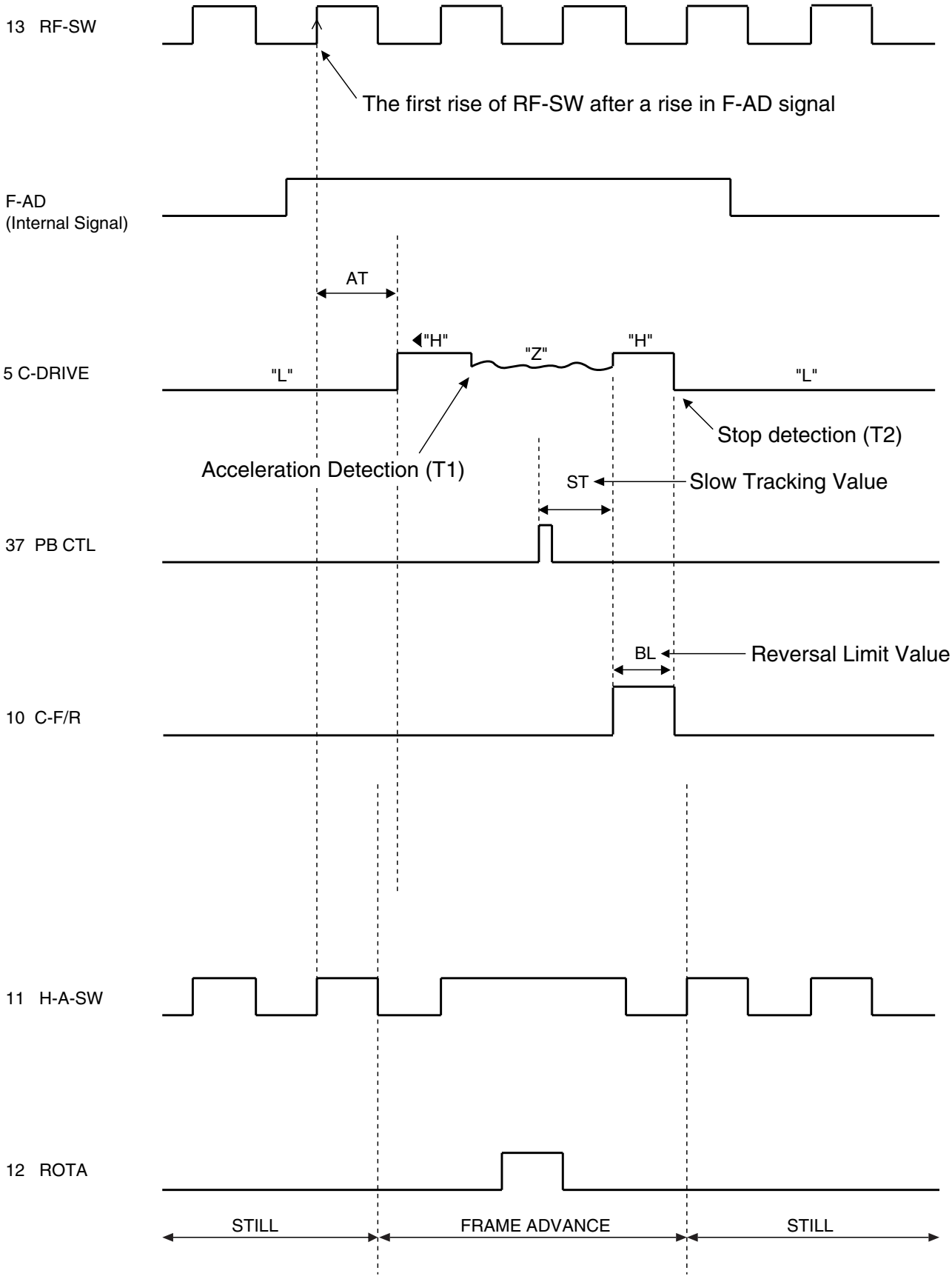

13 RF-SW
The first rise of RF-SW after a rise in F-AD signal
F-AD
(Internal Signal)
AT
"H"
"Z"
"H"
5 C-DRIVE
"L"
"L"
Stop detection (T2)
Acceleration Detection (T1)
ST
Slow Tracking Value
37 PB CTL
BL
Reversal Limit Value
10 C-F/R
11 H-A-SW
12 ROTA
STILL
FRAME ADVANCE
STILL

Fig. 2

1. EJECT (POWER OFF) -> CASSETTE IN (POWER ON) -> STOP(B) -> STOP(A) -> PLAY -> RS -> FS -> PLAY -> STILL -> PLAY -> STOP(A)

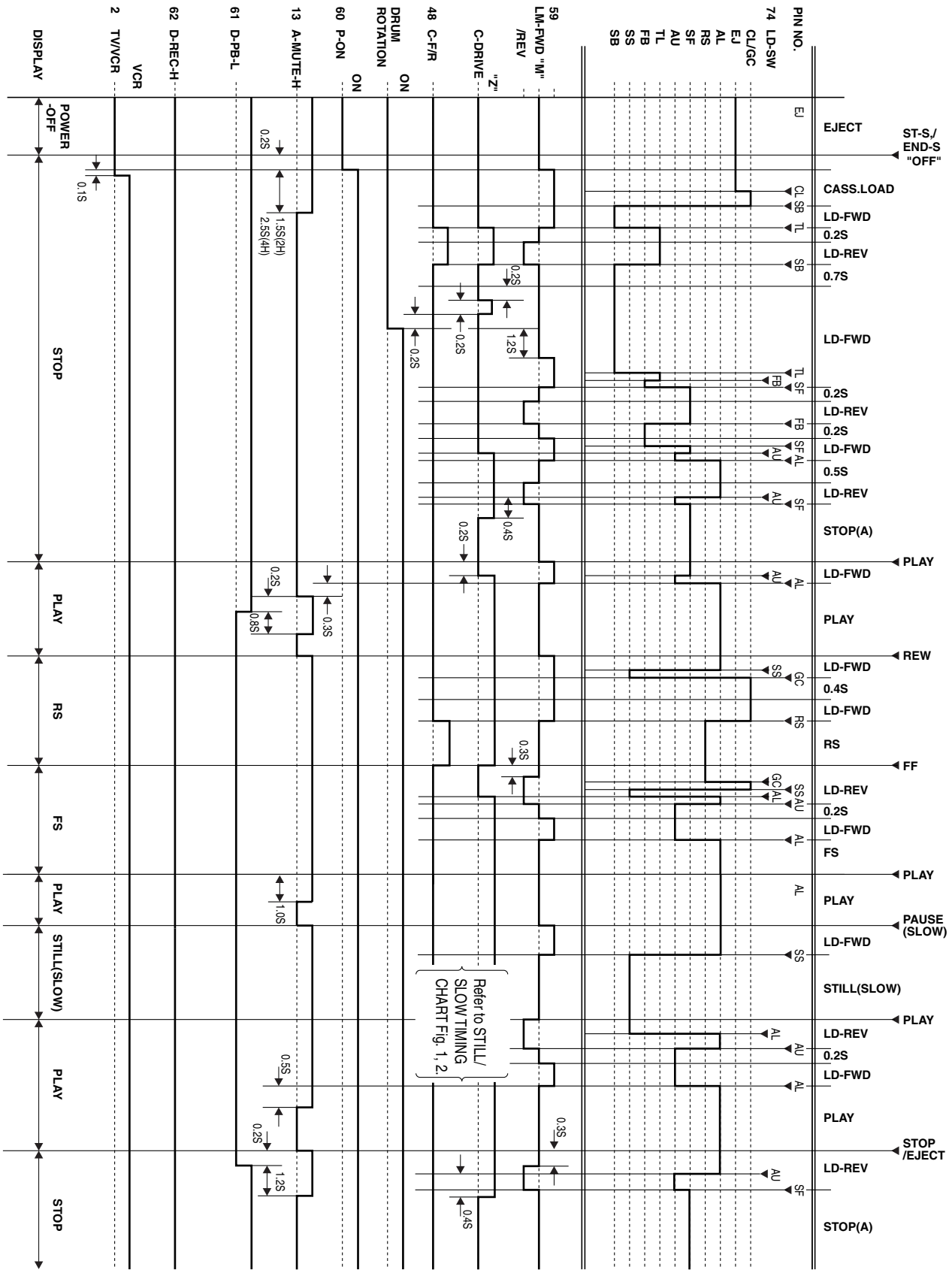


Fig. 3

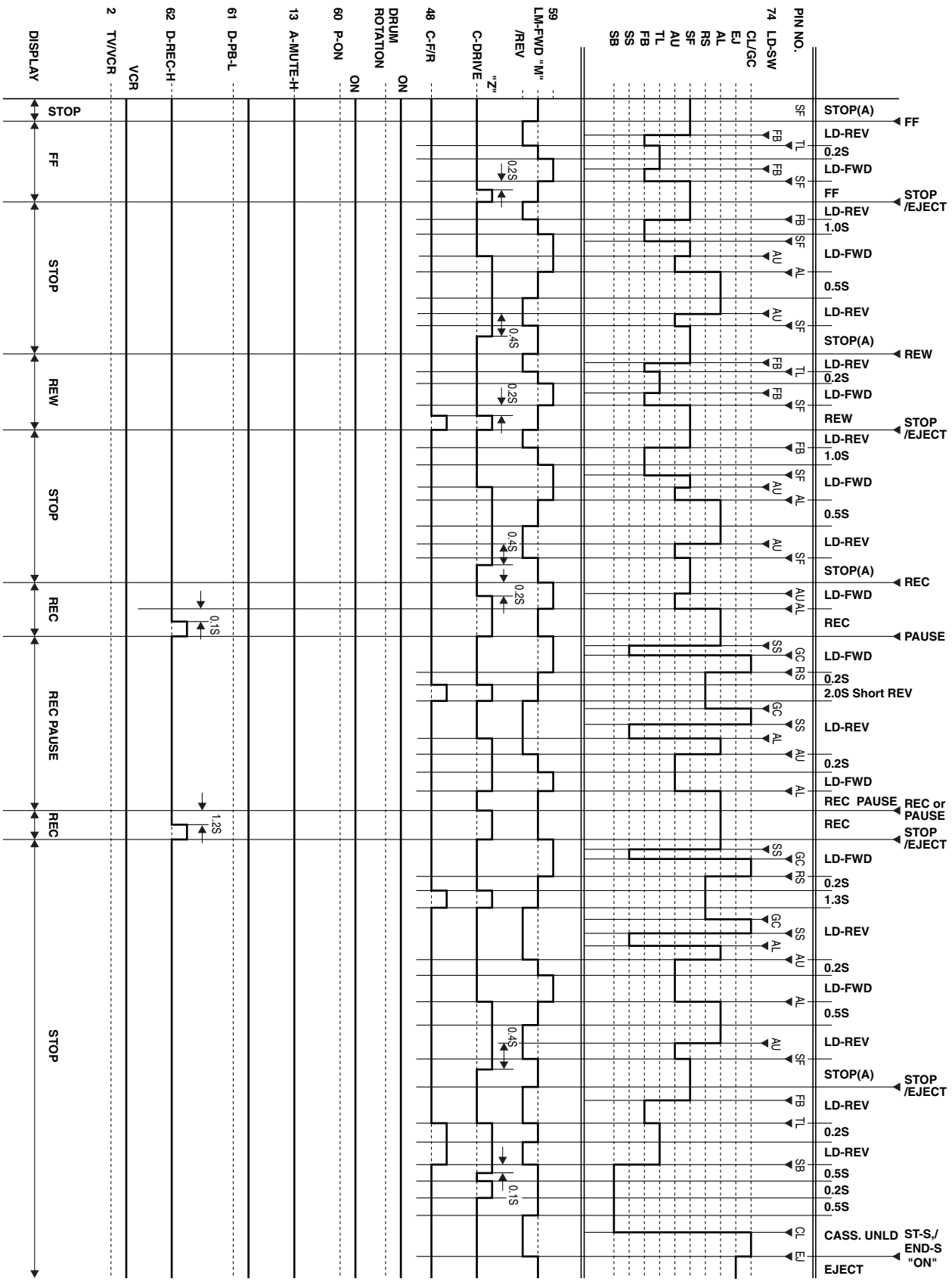

2. STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> PAUSE -> PAUSE or REC -> STOP(A) -> EJECT
PIN NO.
74 LD-SW
CL/GC
EJ
AL
RS
SF
AU
TL
FB
SS
SB
59 LM-FWD "M" /REV
"Z" C-DRIVE
48 C-F/R
DRUM ROTATION
60 P-ON
13 A-MUTE-H
61 D-PB-L
62 D-REC-H
2 TV/VCR
VCR
DISPLAY
STOP
FF
STOP
REW
STOP
REC
REC PAUSE
REC
STOP
STOP(A)
FF
LD-REV
0.2S
LD-FWD
FF
STOP /EJECT
LD-REV
1.0S
LD-FWD
0.5S
LD-REV
STOP(A)
REW
LD-REV
0.2S
LD-FWD
REW
STOP /EJECT
LD-REV
1.0S
LD-FWD
0.5S
LD-REV
STOP(A)
REC
LD-FWD
REC
PAUSE
LD-FWD
0.2S
2.0S Short REV
LD-REV
0.2S
LD-FWD
REC PAUSE
REC or PAUSE
REC
STOP /EJECT
LD-FWD
0.2S
1.3S
LD-REV
0.2S
LD-FWD
0.5S
LD-REV
STOP(A)
STOP /EJECT
LD-REV
0.2S
LD-REV
0.5S
0.2S
0.5S
CASS. UNLD
ST-S,/ END-S "ON"
EJECT
0.2S
0.4S
0.2S
0.4S
0.2S
0.4S
0.1S
0.1S
1.2S

Fig. 4

IC PIN FUNCTION DESCRIPTIONS

IC501(SERVO / SYSTEM CONTROL IC)

"H" ≥ 4.5V, "L" ≤ 1.0V

Pins that have * in the Pin No. section on table below are not used.

Pin No.	IN/ OUT	Signal Name	Function	Active Level
1	IN	REMO-CON-IN	Remote Control Sensor	L
2	OUT	TV/VCR	RF Conv. ON/OFF Signal (TV="L"/ VCR="H")	H/L
3	-	N.U.	Not Used	-
4	-	N.U.	Not Used	-
5	-	N.U.	Not Used	-
6	-	N.U.	Not Used	-
7	OUT	INSEL/ ST-SL	Input Selector Control Signal (EE/Rec)/Still/Slow (Playback)	H/Hi-z /L
8	OUT	HiFi-CS	HiFi IC Chip Select	H
9	IN/ OUT	I^2C BUS-DATA	I^2C BUS Data Input/ Output	H/L
10	OUT	I^2C BUS-CLK	I^2C BUS Clock Output	H/L
11	OUT	HiFi-CLK	HiFi IC Control Clock Output	H/L
12	OUT	HiFi-DATA	HiFi IC Control Data Output	H/L
13	OUT	A-MUTE	Audio Mute Control Signal (Mute = "H")	H
14	IN	H-A-COMP	Head Amp Coparator Signal	H/L
15	OUT	C-ROTA	Color Phase Rotary Changeover SIgnal	H/L
16	OUT	H-A-SW	Video Head Amp Switching Pulse	H/L
17	OUT	RF-SW	Video Head Switching Pulse	H/L
18	OUT	HiFi-H-SW	HiFi Audio Head Switching Pulse	H/L
19	OUT	REC-CTL (+)	Record Control Signal (+)	H/L
20	OUT	REC-CTL (-)	Record Control Signal (-)	H/L
21	IN	C-SYNC	Composite Synchronized Pulse	PULSE
22	-	GND	GND	-
23	-	N.U.	Not Used	-
24	-	OSDVss	OSDVss	-
25	IN	REC-SW	Recoding Safety SW Detect (With Record tab="L"/ With out Record tab="H")	H/L
*26	IN	C-VIDEO-IN	Composite Video Signal Input (Slicer)	-
*27	IN	VHOLD	Condenser Connected Terminal (Slicer)	-
28	-	HLF	LPF Connected Terminal (Slicer)	-
29	-	GND	GND	-
30	OUT	OSD- BB-OUT	Composite Video Signal Output (Blue Back)	-
31	OUT	OSD-CHARA-OUT	Character Output (Superimposed)	-
32	-	OSDVcc	OSDVcc	-
33	OUT	D-V SYNC	Dummy V-sync Output	H/Hi-z
34	IN	RESET	System Reset Signal (Reset="L")	L
35	IN	OSCIN	Clock Input for letter size	-
36	OUT	OSCOUT	Clock Output for letter size	-
37	-	Vcc	Vcc	-
38	IN	X-IN	Main Clock Input 14.31818 MHz	-
39	OUT	X-OUT	Main Clock Output	-
40	-	Vss	Vss(GND)	-
41	IN	XC-IN	Sub Clock 32 kHz	-
42	OUT	XC-OUT	Sub Clock 32 kHz	-
43	IN	CLKSEL	Clock Select (GND)	L
44	OUT	PICTURE-SEL	Picture Control Signal	-
45	OUT	SP/LP/ SLP	Top Speed Select Siganl (SP="L"/ LP="Z"/SLP="H")	H/Z/L
46	-	N.U.	Not Used	-
47	OUT	TRICK/C-G/APC	Special Playback/ Copy Guard/APC Control Signal	H/Z/L
48	OUT	C-F/R	Capstan Motor FWD/ REV Control Signal (FWD="L"/REV="H")	H/L
49	IN	T-REEL	Take Up Reel Rotation Signal	PULSE
50	-	N.U.	Not Used	-
51	IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
52	IN	D-FG	Drum Motor Rotation Detection Pulse	PULSE
53	IN	D-PG	Drum Motor Pulse Generator	PULSE

Pin No.	IN/ OUT	Signal Name	Function	Active Level
54	IN	PB-CTL	Playback Control Signal	PULSE
55	OUT	C-CONT	Capstan Motor Control Signal	PWM
56	OUT	D-CONT	Drum Motor Control Signal	PWM
57	-	N.U.	Not Used	-
58	-	N.U.	Not Used	-
59	OUT	LM-FWD/ REV	Loading Motor FWD/ REV Outpit	H/Z/L
60	OUT	P-ON-L	Power On Signal to Low	L
61	OUT	D-PB	Playback Instruction Signal (Playback="L")	L
62	OUT	D-REC	Delayed Record Signal	H
63	IN	P-DOWN -L	Power Voltage Down Detector Signal	L
64	-	N.U.	Not Used	-
65	IN	HiFi/NOR-IN	Audio Mode Input HiFi="L"/ Normal="H"	H/L
66	OUT	BLUE BACK-ON	Blueback Control Signal	H
67	IN	ST/SAP-IN	Tuner Stereo/Sap Detector Siganl Input	A/D
68	IN	END-S	Tape End Position Detect Signal	A/D
69	IN	AFC	Automatic Frequency Control Signal	A/D
70	IN	V-ENV	Video Envelope Comparator Signal	A/D
71	IN	PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage	A/D
72	IN	KEY-1	A/D Key Data Signal 1	A/D
73	IN	KEY-2	A/D Key Data Signal 2	A/D
74	IN	LD-SW	Deck Mode Position Detector Signal	A/D
75	IN	ST-S	Tape Start Position Detector Signal	A/D
76	-	AVcc	A/D Converter Power Input/ Standard Voltage Input	-
77	-	FLDVCC	FLDVcc	-
78	-	FLDVP	GND	-
79	-	N.U.	Not Used	-
80	-	N.U.	Not Used	-
81	-	N.U.	Not Used	-
82	-	N.U.	Not Used	-
83	OUT	REC LED	"REC" LED Signal Output	H/L
84	OUT	TIMER LED	"TIMER" LED Signal Output	H/L
85	-	N.U.	Not Used	-
86	-	N.U.	Not Used	-
87	-	N.U.	Not Used	-
88	OUT	CAS- IN LED	"CASSETTE" LED Signal Output	H/L
89	-	N.U.	Not Used	-
90	-	N.U.	Not Used	-
91	-	N.U.	Not Used	-
92	-	N.U.	Not Used	-
93	OUT	VCR/TV LED	VCR/TV Mode LED Indicate	H/L
94	-	N.U.	Not Used	-
95	-	N.U.	Not Used	-
96	-	N.U.	Not Used	-
97	-	N.U.	Not Used	-
98	-	N.U.	Not Used	-
99	-	N.U.	Not Used	-
100	-	N.U.	Not Used	-

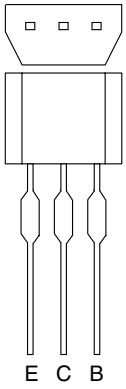
Notes:

Abbreviation for Active Level:

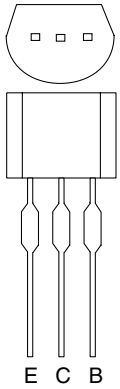
PWM -----Pulse Wide Modulation

A/D--------Analog - Digital Converter

LEAD IDENTIFICATIONS

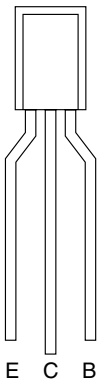


BN1F4M-T
BA1F4M-T
KTA1266(GR)
KTC3193(Y)
KTC3199(Y,GR,BL)
2SC2785(J.H.F.K)
2SA1015-GR(TPE2)
KTA1267(Y,GR)
KTC3198(Y,GR)
KRC103M
KRA103M
2SA1175(J,H,F)

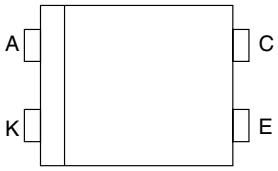


2SC1815-BL(TPE2)
2SC1815-Y(TPE2)
2SC1815-GR(TPE2)
2SC3331(T,U)
2SC2120-Y(TPE2)
KTC3203(Y)

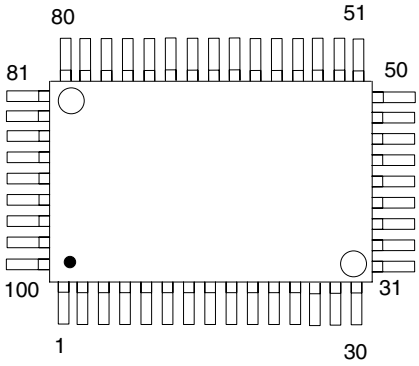
2SC536NF(NG)-NPA-AT



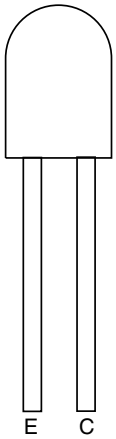
LTV-817(B.C)-F
EL817(A.B.C)



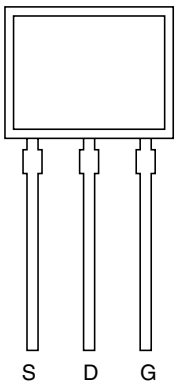
QSZAA0RMB108
LA71091M



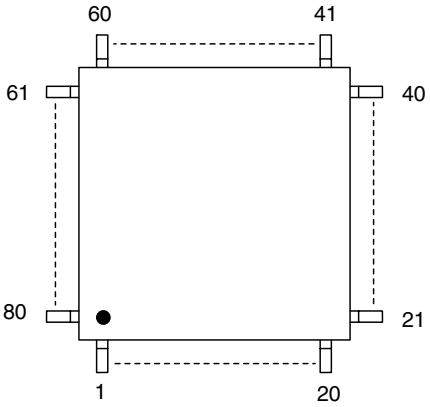
MID-32A22
PT204-6B-12



2SK3374
2SK3472
2SK2599



LA72000M



Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

EWV601A/KVS600A/SSV6001A

Sec. 2: Deck Mechanism Section

- **Standard Maintenance**
- **Alignment for Mechanism**
- **Disassembly/Assembly of Mechanism**
- **Alignment Procedures of Mechanism**

TABLE OF CONTENTS

Standard Maintenance 2-1-1
Service Fixtures and Tools 2-2-1
Mechanical Alignment Procedures 2-3-1
Disassembly / Assemly Procedures of Deck Mechanism 2-4-1
Alignment Procedures of Mechanism 2-4-9

STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ❍: Check ●: Change

Deck		Periodic Service Schedule			
Ref.No.	**Part Name**	**1,000 H**	**2,000 H**	**3,000 H**	**4,000 H**
B2	Cylinder Assembly	❍	●	❍	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B27	Tension Lever Sub Assembly		●		●
B31	AC Head Assembly			●	
B573,B574	Reel S, Reel T			●	
B37	Capstan Motor		●		●
B52	Cap Belt		●		●
*B73	FE Head			●	
B133	Idler Assembly		●		●
B410	Pinch Arm (A) Assembly		●		●
B414	M Brake S Assembly		●		●
B416	M Brake T Assembly		●		●
B525	LDG Belt		●		●

Notes:

1. Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / Audio Control Head / Full Erase Head) using 90% Isopropyl Alcohol.
2. After cleaning the parts, do all DECK ADJUSTMENTS.
3. For the reference numbers listed above, refer to Deck Exploded Views.

* B73 ------ Recording Model only

Cleaning

Cleaning of Video Head

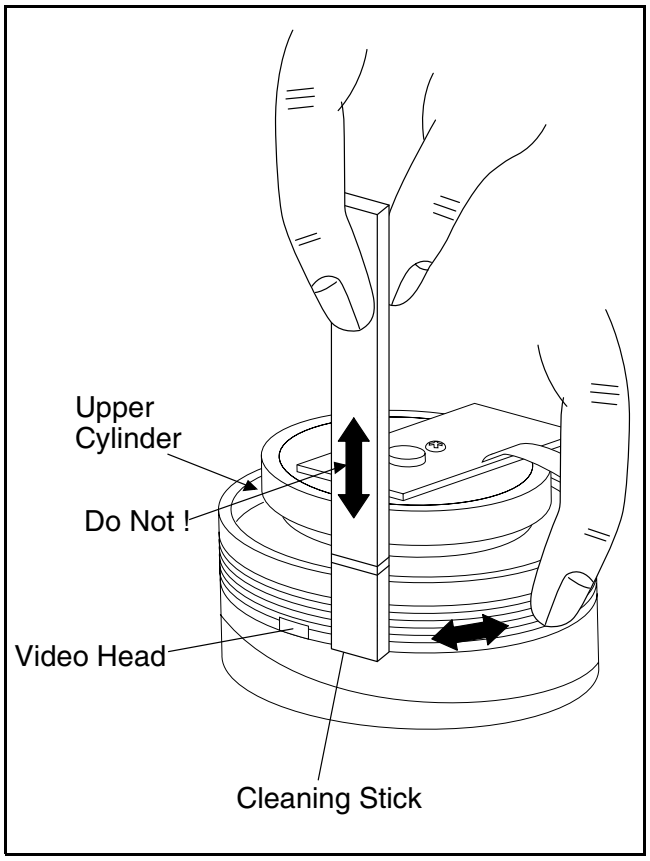
Clean the head with a head cleaning stick or chamois cloth.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper and lower drum with your bare hand.
3. Put a few drops of 90% Isopropyl alcohol on the head cleaning stick or on the chamois cloth and, by slightly pressing it against the head tip, turn the upper drum to the right and to the left.

Notes:

1. The video head surface is made of very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit.
3. Do not reuse a stained head cleaning stick or a stained chamois cloth.



Cleaning of Audio Control Head

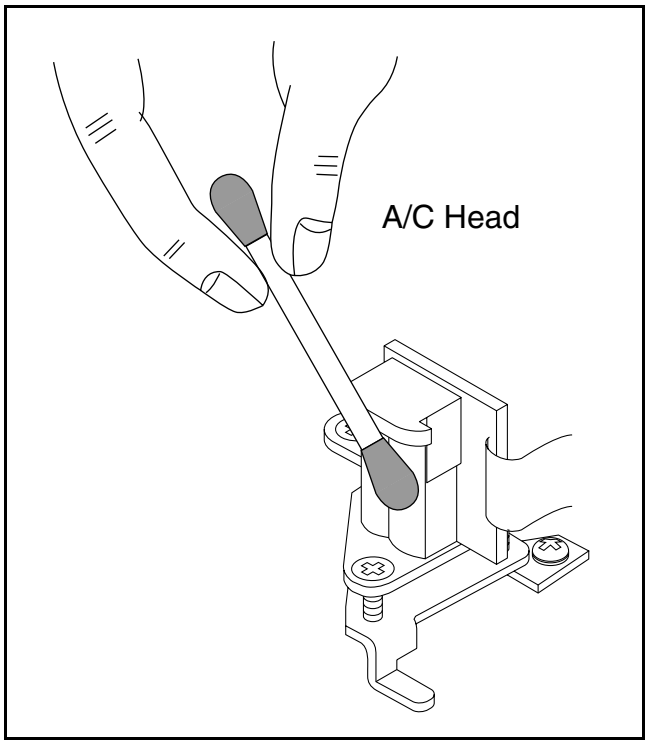
Clean the head with a cotton swab.

Procedure

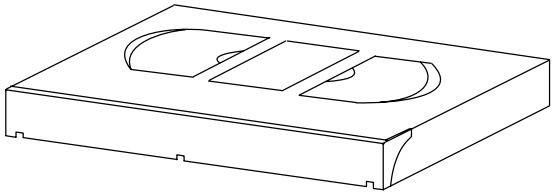
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

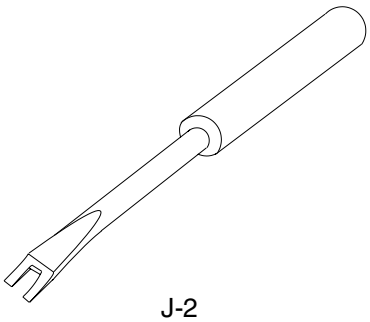
1. Avoid cleaning the audio control head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



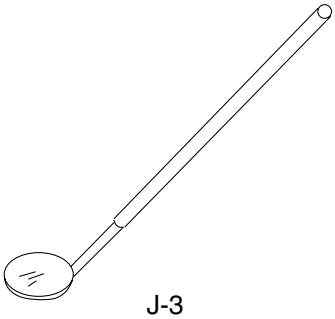
SERVICE FIXTURE AND TOOLS



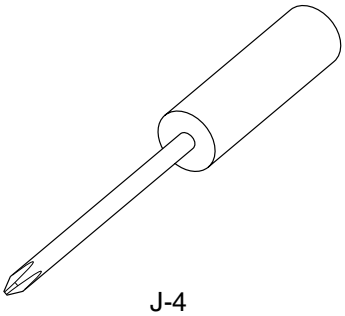
J-1-1, J-1-2



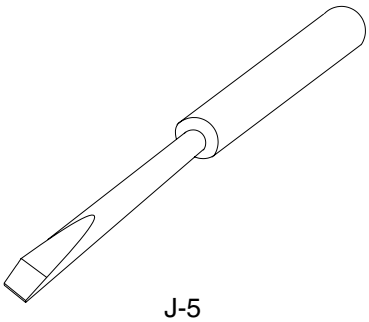
J-2



J-3



J-4



J-5

Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL8A	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	FL8N (2Head only) FL8NW (4Head only)	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj.Screwdriver	Available Locally	Guide Roller
J-3	Mirror	FSJ-0004	Tape Transportation Check
J-4	Azimuth Adj.Screwdriver +	Available Locally	A/C Head Height
J-5	X Value Adj.Screwdriver -	Available Locally	X Value

MECHANICAL ALIGNMENT PROCEDURES

Explanation of alignment for the tape to correctly run starts on the next page. Refer to the information below on this page if a tape gets stuck, for example, in the mechanism due to some electrical trouble of the unit.

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 for a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Make sure that the Moving guide preparations are in the Eject Position.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 until the Moving guide preparations come to the Eject Position. Stop turning when the preparations begin clicking or can not be moved further. However, the tape will be left wound around the cylinder.
5. Turn the LDG Belt in the appropriate direction continuously, and the cassette tape will be ejected. Allow a minute or two to complete this task.

B. Method to place the Cassette Holder in the tape-loaded position without a cassette tape

1. Disconnect the AC Plug.
2. Remove the Top Case and Front Assembly.
3. Turn the LDG Belt in the appropriate direction shown in Fig. M1. Release the locking tabs shown in Fig. M1 and continue turning the LDG Belt until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.

Top View

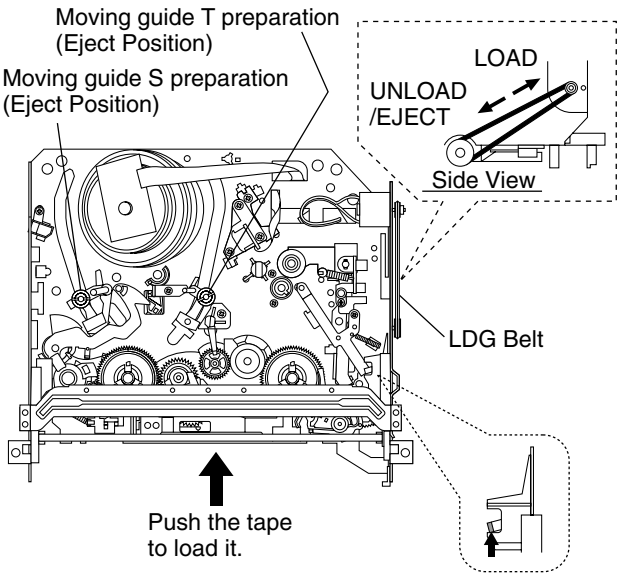


Fig. M1

Bottom View

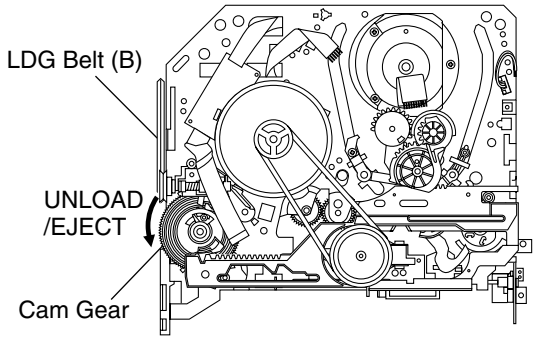


Fig. M2

1.Tape Interchangeability Alignment

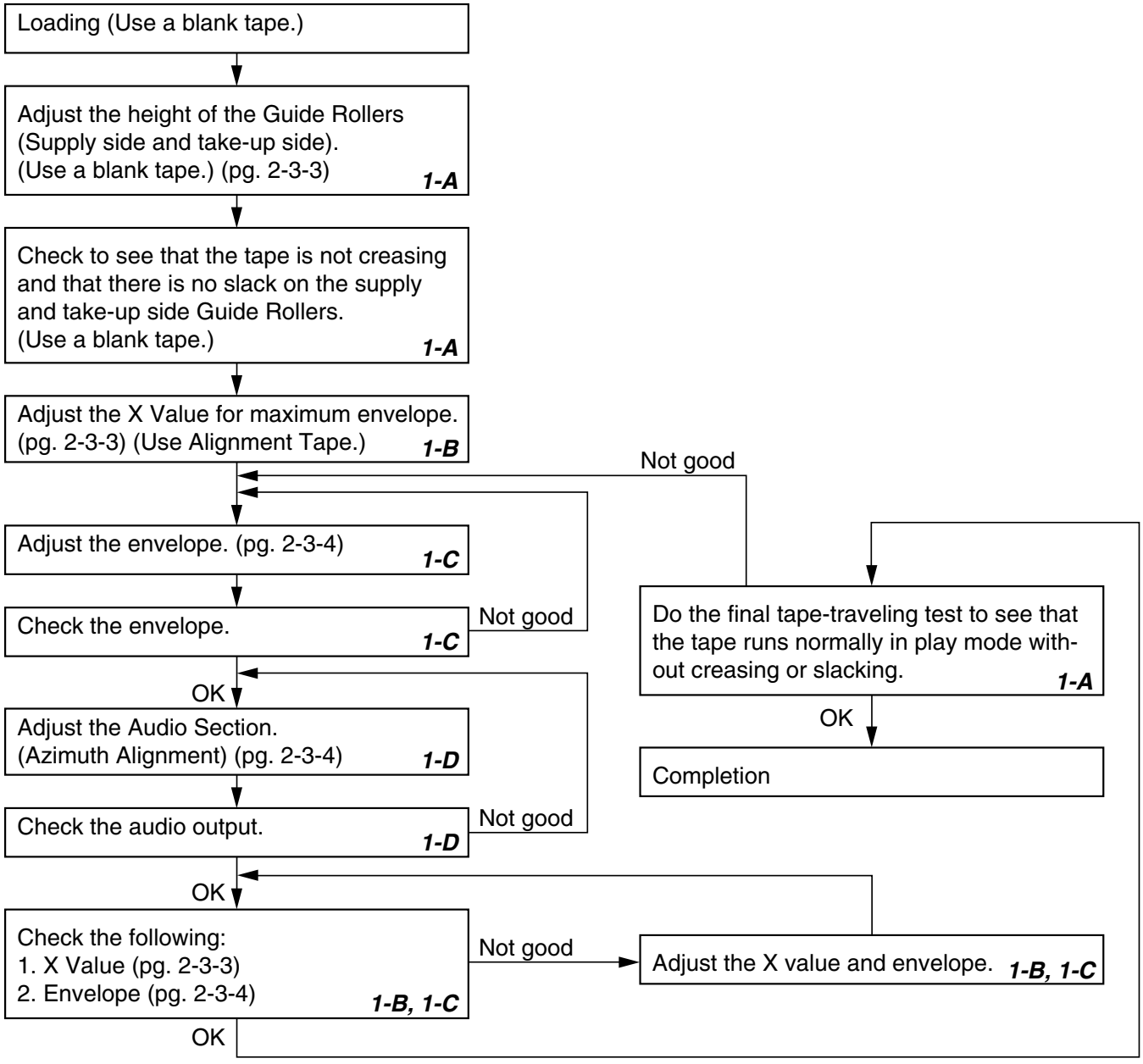
Note:
To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (FL8NW)
Guide Roller Adj. Screwdriver
X-Value Adj. Screwdriver

Note: Before starting this Mechanical Alignment, do all Electrical Adjustment procedures.

Flowchart of Alignment for tape traveling


Loading (Use a blank tape.)
Adjust the height of the Guide Rollers (Supply side and take-up side). (Use a blank tape.) (pg. 2-3-3) 1-A
Check to see that the tape is not creasing and that there is no slack on the supply and take-up side Guide Rollers. (Use a blank tape.) 1-A
Adjust the X Value for maximum envelope. (pg. 2-3-3) (Use Alignment Tape.) 1-B
Not good
Adjust the envelope. (pg. 2-3-4) 1-C
Check the envelope. 1-C
Not good
OK
Adjust the Audio Section. (Azimuth Alignment) (pg. 2-3-4) 1-D
Check the audio output. 1-D
Not good
OK
Check the following:
1. X Value (pg. 2-3-3)
2. Envelope (pg. 2-3-4) 1-B, 1-C
Not good
Adjust the X value and envelope. 1-B, 1-C
OK
Do the final tape-traveling test to see that the tape runs normally in play mode without creasing or slacking. 1-A
OK
Completion

1-A. Preliminary/Final Checking and Alignment of Tape Path

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

If the tape path is unstable, the tape will be damaged.

Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Play back a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)

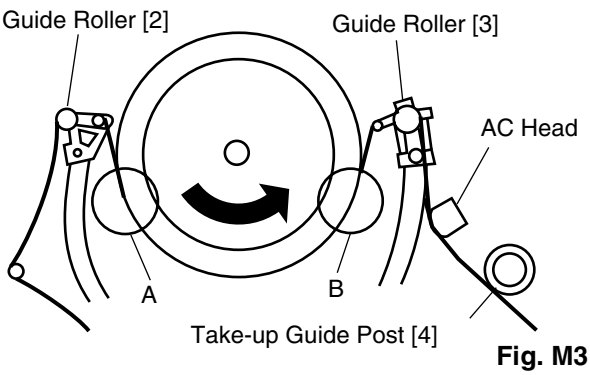


Fig. M3

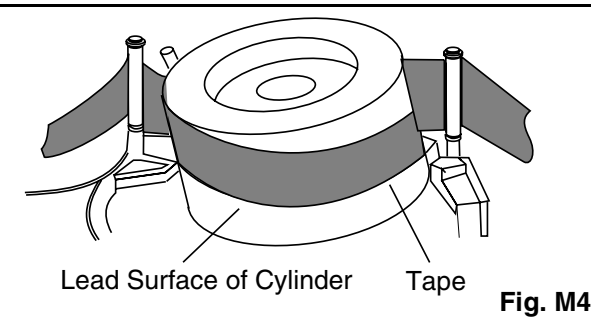


Fig. M4

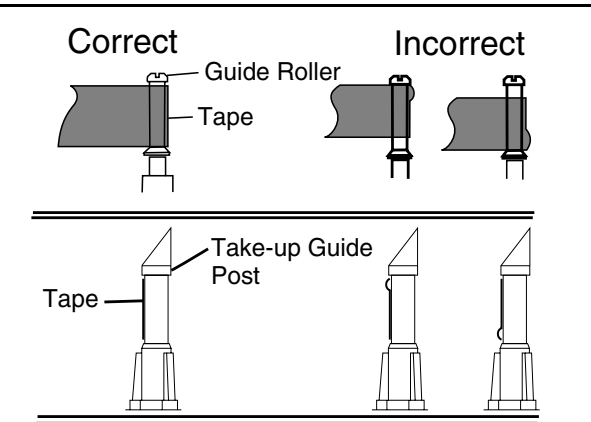


Fig. M5

3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and AC Head. (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the AC Head. (Fig. M6)

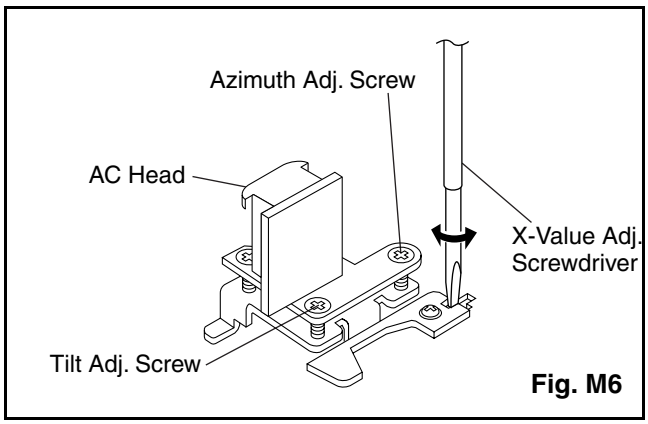


Fig. M6

1-B. X Value Alignment

Purpose:

To align the Horizontal Position of the Audio/Control/Erase Head.

Symptom of Misalignment:

If the Horizontal Position of the Audio/Control/Erase Head is not properly aligned, maximum envelope cannot be obtained at the Neutral position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) and TP303 (CTL) on the Main CBA. Use TP302 (RF-SW) as a trigger.
2. Play back the Gray Scale of the Alignment Tape (FL8NW) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the center position by pressing CH UP button then " PLAY " button on the unit. (Refer to note on bottom of page 2-3-4.)
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at TP301 (C-PB) is maximum. (Fig. M6)
5. Press CH UP button on the unit until the CTL waveform has shifted by approx. +2msec. Make sure that the envelope is simply attenuated (shrinks in height) during this process so that you will know the envelope has been at its peak.

6. Press CH DOWN button on the unit until the CTL waveform has shifted from its original position (not the position achieved in step 5, but the position of CTL waveform in step 4) by approximately -2msec. Make sure that the envelope is simply attenuated (shrinks in height) once CTL waveform passes its original position and is further brought in the minus direction.
7. Set the Tracking Control Circuit to the center position by pressing CH UP button and then " PLAY " button.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture and precise tracking.

Symptom of Misalignment:

If the envelope output is poor, noise will appear in the picture. The tracking will then lose precision and the playback picture will be distorted by any slight variation of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) on the Main CBA. Use TP302 (RF-SW) as a trigger.
2. Play back the Gray Scale on the Alignment Tape (FL8NW). Set the Tracking Control Circuit to the center position by pressing CH UP button and then " PLAY " button on the unit. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig.M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure center position. The number of pushes CH UP button to achieve 1/2 level of envelope should match the number of pushes CH DOWN button from center. If required, redo the "X Value Alignment."

1-D. Azimuth Alignment of Audio/Control/ Erase Head

Purpose:

To correct the Azimuth alignment so that the Audio/ Control/Erase Head meets tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control/Erase Head is not properly aligned, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Play back the alignment tape (FL8NW) and confirm that the audio signal output level is 8kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)

Dropping envelope level at the beginning of track.

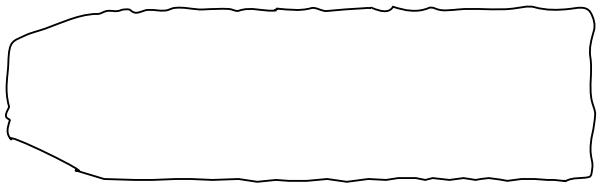


Fig. M7

Dropping envelope level at the end of track.

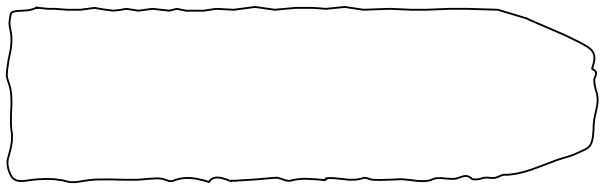


Fig. M8

Envelope is adjusted properly. (No envelope drop)

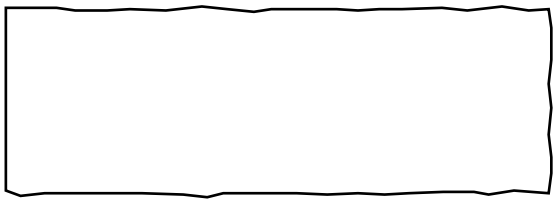


Fig. M9

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Before following the procedures described below, be sure to remove the deck assembly from the cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-6-1.)
All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [41] and [42] in Fig.DM1 on page 2-4-3. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder A	T	DM3	2(S-1)	
[2]	[1]	Cassette Holder Assembly	T	DM4		
[3]	[2]	Slider L	T	DM5	(S-2)	
[4]	[2]	Slider R	T	DM5	(S-3)	
[5]	[4]	Lock Lever	T	DM5	(S-4),*(P-1)	
[6]	[2]	C Plate	T	DM5		
[7]	[7]	Cylinder Assembly	T	DM1,DM6	Desolder, 3(S-5)	
[8]	[8]	Loading Motor Assembly	T	DM1,DM7	Desolder, LDG Belt, 2(S-6)	
[9]	[9]	AC Head Assembly	T	DM1,DM7	(S-7)	
[10]	[2]	Tape Guide Assembly	T	DM1,DM8	*(P-2)	
[11]	[10]	Door Opener B	T	DM1,DM8	*(L-1),*(L-2)	
[12]	[11]	Pinch Arm (B)	T	DM1,DM8	*(P-3)	
[13]	[12]	Pinch Arm (A) Assembly	T	DM1,DM8		
[14]	[14]	FE Head	T	DM1,DM9	(S-8)	
[15]	[15]	Prism	T	DM1,DM9	(S-9)	
[16]	[2]	Slider Shaft	T	DM10	(S-10),*(L-3)	
[17]	[16]	C Drive Lever L	T	DM10		
[18]	[16]	C Drive Lever R	T	DM10		
[19]	[7],[10]	Capstan Motor	B	DM2,DM11	3(S-11), Cap Belt	
[20]	[20]	Clutch Assembly	B	DM2,DM12	(C-1)	
[21]	[20]	FF Arm	B	DM2,DM12		
[22]	[22]	Cam Holder F	B	DM2,DM13	(C-2)	
[23]	[23]	Cam Gear (B)	B	DM2,DM13	(C-3),*(P-4)	
[24]	[24]	Mode Gear	B	DM2,DM14	(C-4)	
[25]	[20],[23], [24]	Mode Lever	B	DM2,DM14	(C-5), *(L-4)	
[26]	[22]	Worm Holder	B	DM2,DM14	(S-12)	
[27]	[26]	Pully Assembly	B	DM2,DM14		
[28]	[25],[26]	Cam Gear (A)	B	DM2,DM14		
[29]	[25]	Idler Assembly	B	DM1,DM15	*(L-5)	
[30]	[25]	BT Arm	B	DM2,DM15	*(P-5)	
[31]	[25]	Loading Arm S (B) Assembly	B	DM2,DM15		(+)Refer to Alignment Sec.Pg.2-4-9
[32]	[31]	Loading Arm T (B) Assembly	B	DM2,DM15		(+)Refer to Alignment Sec.Pg.2-4-9

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[33]	[2],[25]	M Brake T Assembly	T	DM1,DM16	*(P-6)	
[34]	[2],[25]	M Brake S Assembly	T	DM1,DM16	*(P-7)	
[35]	[34]	Tension Lever Sub Assembly	T	DM1,DM16		
[36]	[35]	T Lever Holder	T	DM1,DM16	*(L-6)	
[37]	[33]	M Gear	T	DM1,DM16	(C-6)	
[38]	[2],[15]	Sensor Gear	T	DM1,DM16	(C-7)	
[39]	[33]	Reel T	T	DM1,DM16		
[40]	[35]	Reel S	T	DM1,DM16		
[41]	[31],[35]	Moving Guide S Preparation	T	DM1,DM17		
[42]	[32]	Moving Guide T Preparation	T	DM1,DM17		
[43]	[19]	TG Post Assembly	T	DM1,DM17	*(L-7)	
[44]	[19],[28]	Rack Assembly	R	DM18		(+)Refer to Alignment Sec.Pg.2-4-10
[45]	[44]	F Door Opener	R	DM18		
[46]	[46]	Cleaner Lever Assembly	T	DM1,DM6	*(L-8)	
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)	↓ (6)	↓ (7)

(1): Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as Identification (location) No. of parts in the figures.

(2): Indicates the part to start disassembling with in order to disassemble the part in column (1).

(3): Name of the part

(4): Location of the part: T=Top B=Bottom R=Right L=Left

(5): Figure Number

(6): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

(7): Adjustment Information for Installation
(+):Refer to Deck Exploded Views for lubrication.

.

Top View

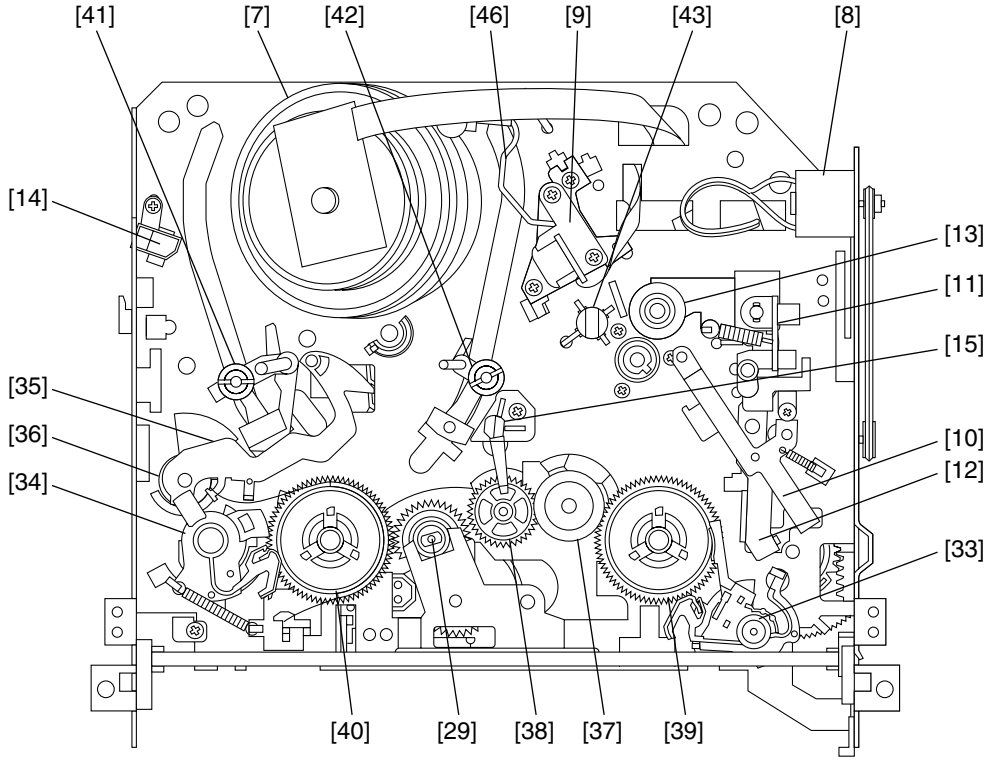


Fig. DM1

Bottom View

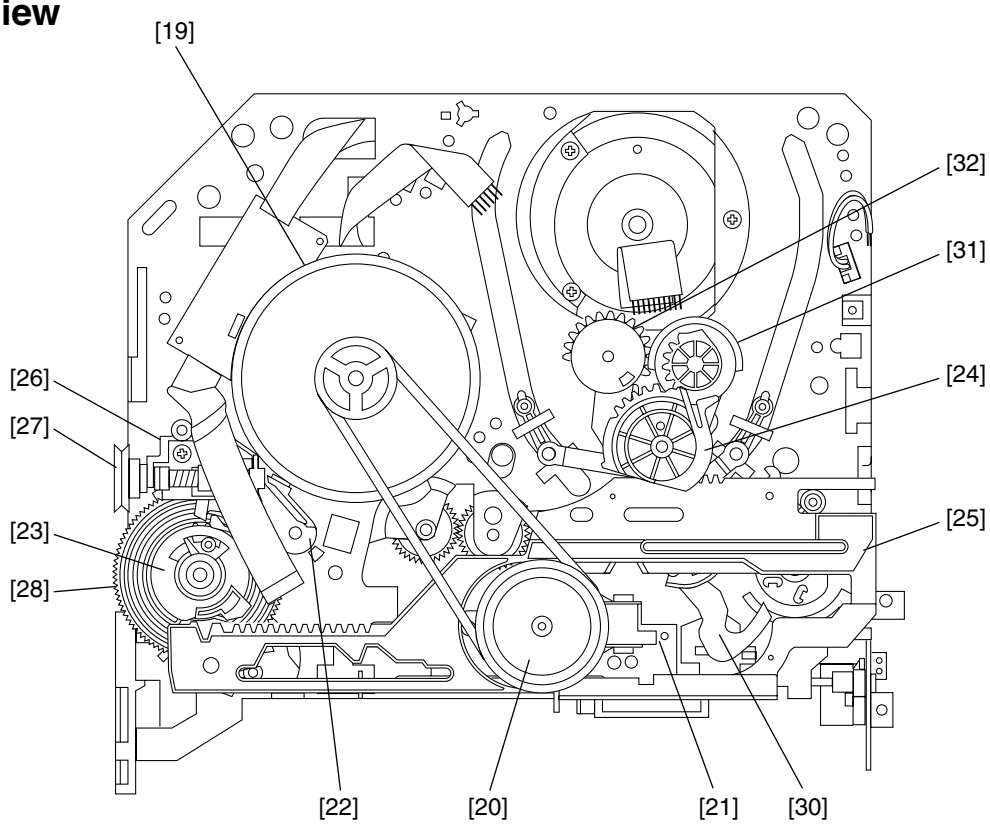


Fig. DM2

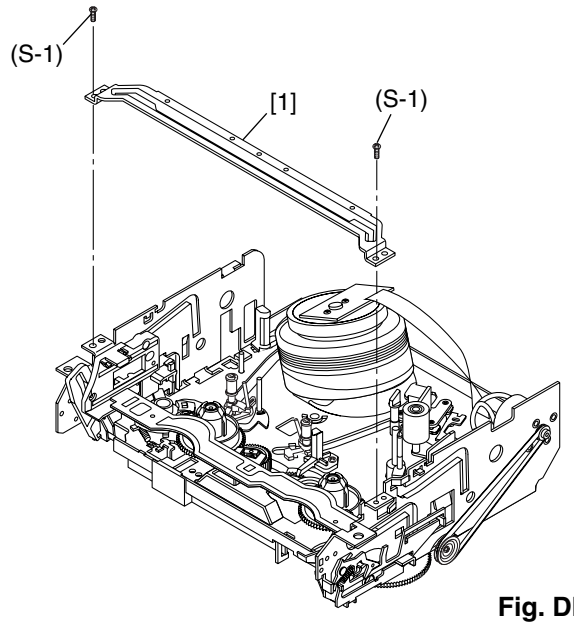


Fig. DM3

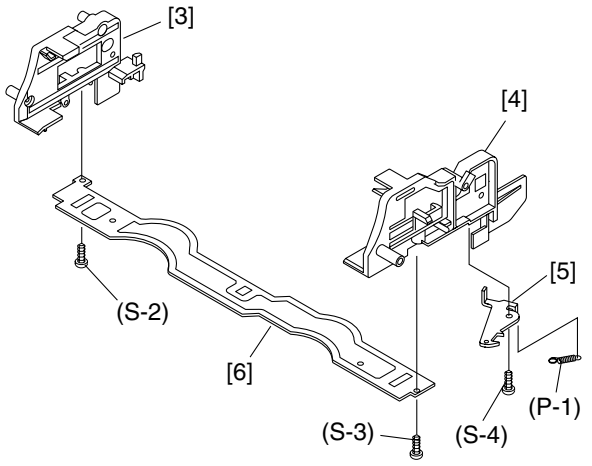
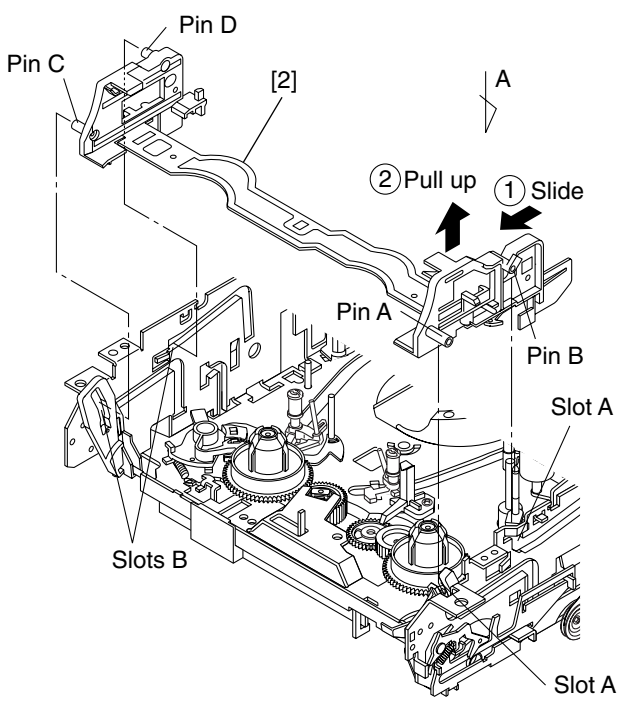


Fig. DM5



First, while pushing the locking tab as shown in the right, slide and pull up the right side on [2] to release Pin A and Pin B from the slots A.
Then, remove Pin C and Pin D on [2] from the slots B as shown.

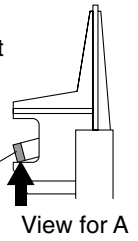
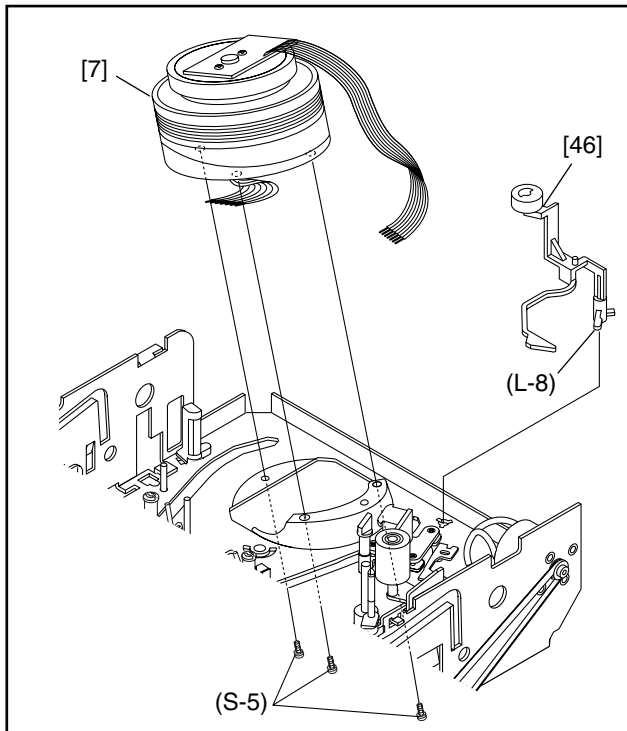


Fig. DM4



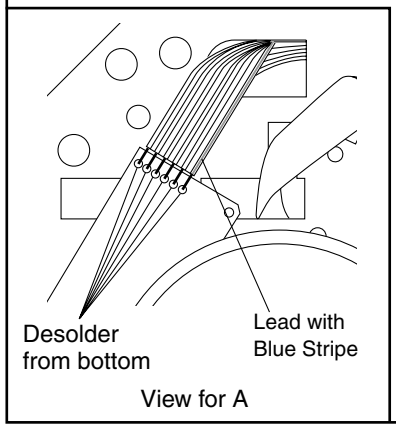


Fig. DM6

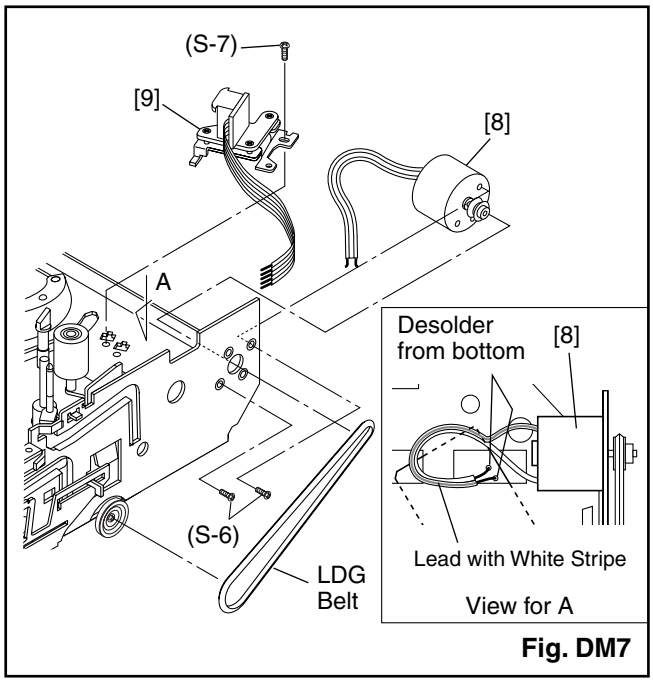


Fig. DM7

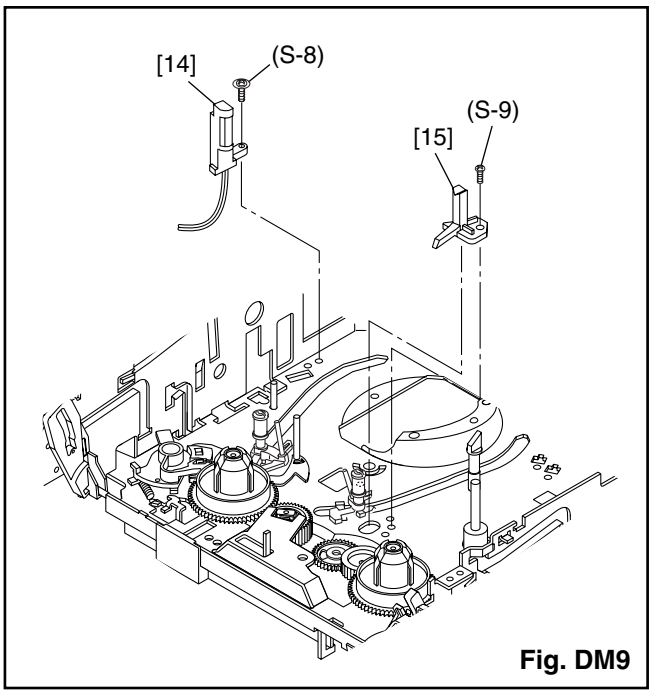
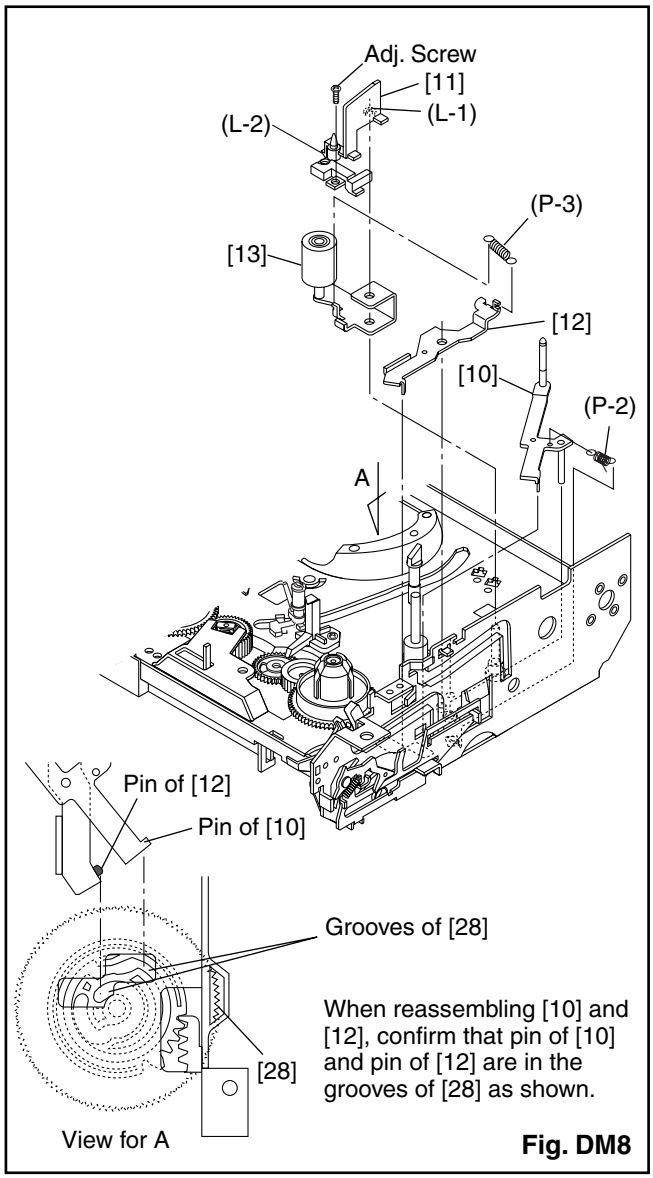


Fig. DM9



When reassembling [10] and [12], confirm that pin of [10] and pin of [12] are in the grooves of [28] as shown.

Fig. DM8

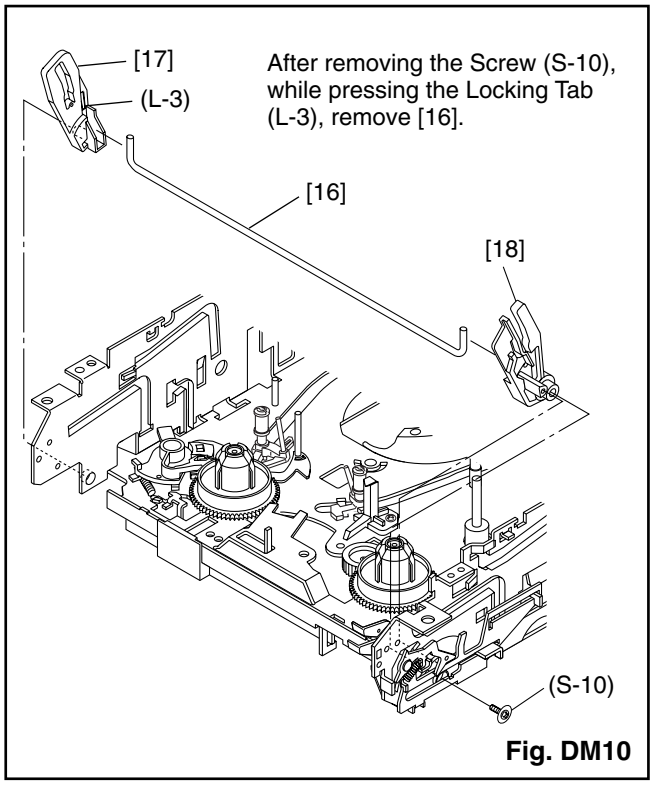


Fig. DM10

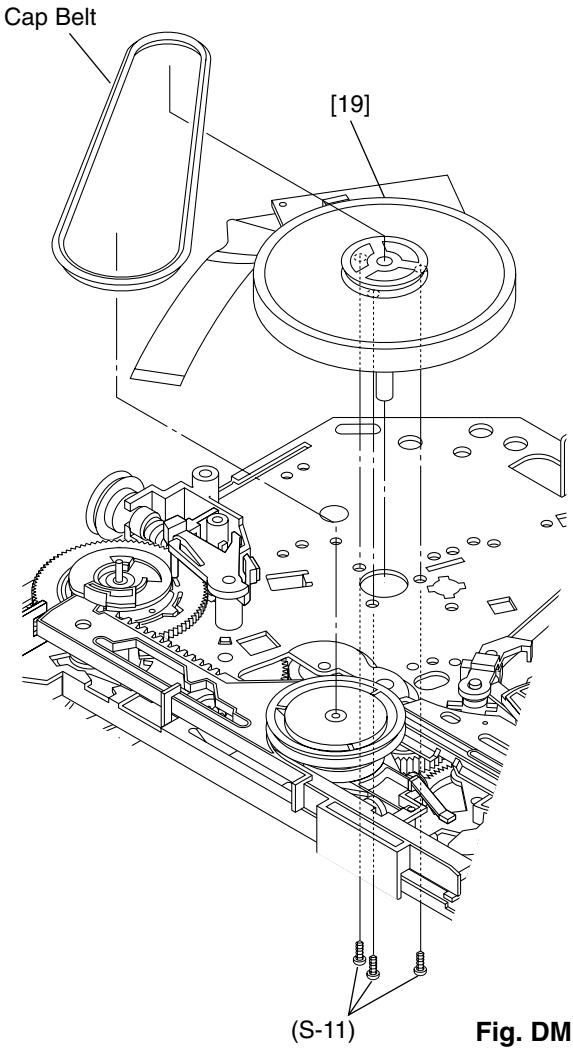


Fig. DM11

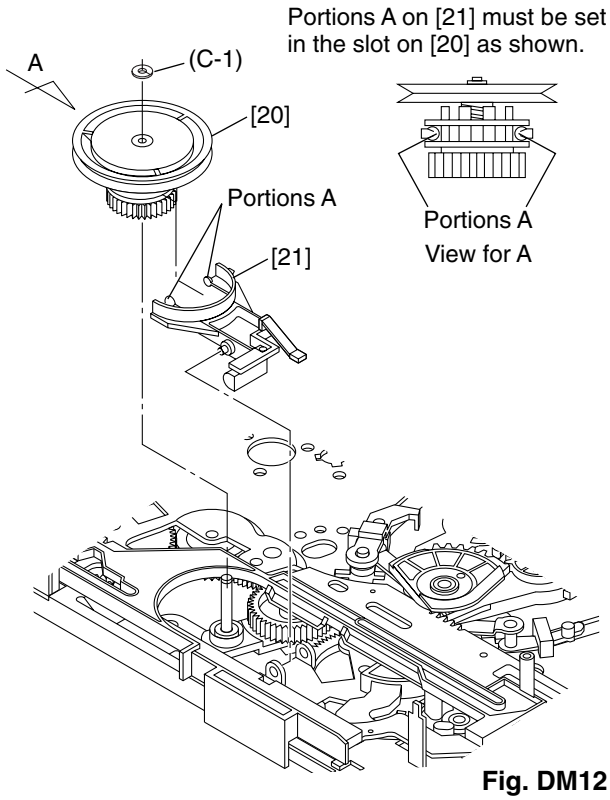
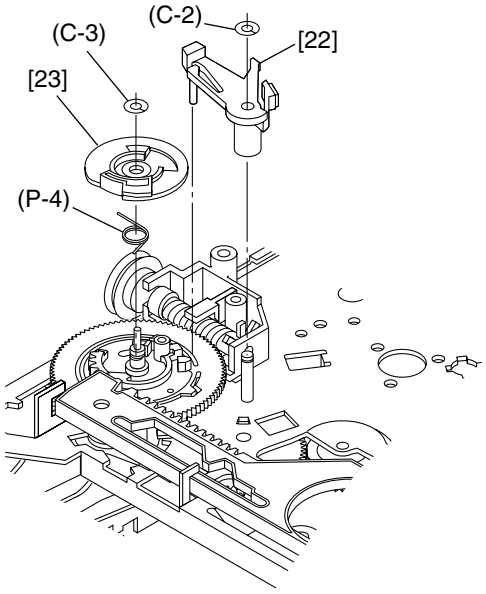
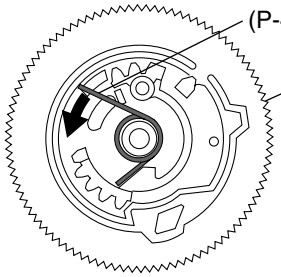


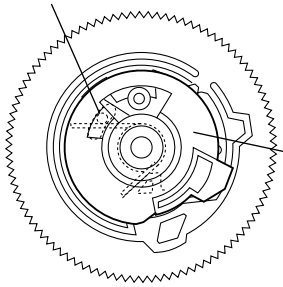
Fig. DM12



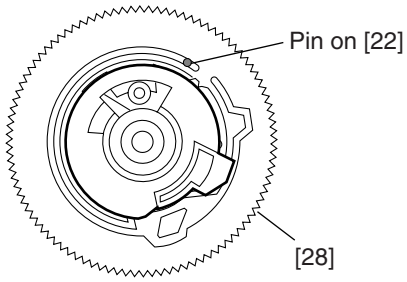


When installing [23], install the spring (P-4) to [28] as shown in the left figure, and then install [23] while pressing the spring (P-4) to the direction of the arrow in the left figure and confirming that the position of the spring (P-4) is placed as shown in the left figure.

Pin on bottom of [23]

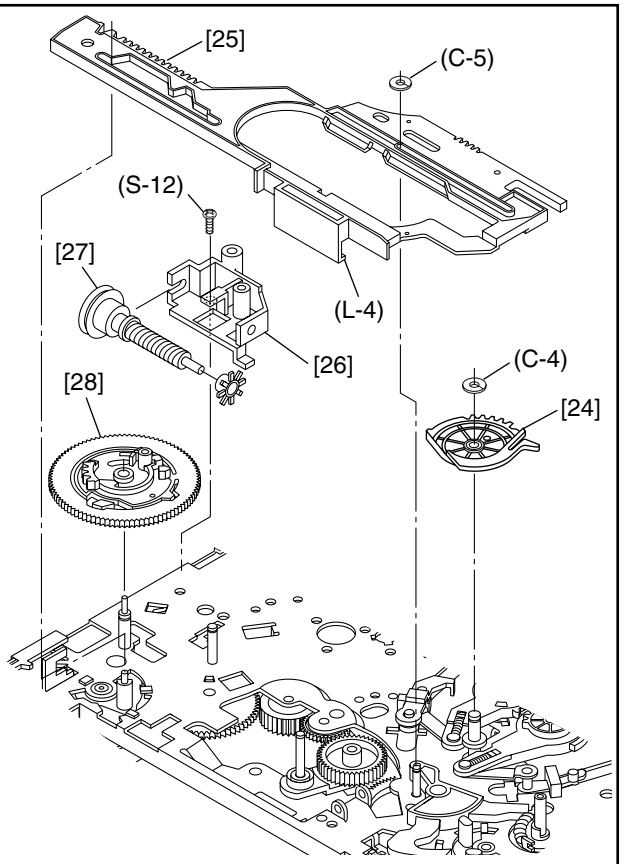


Top View

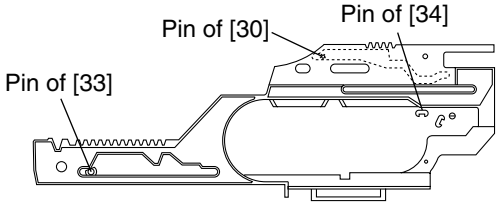


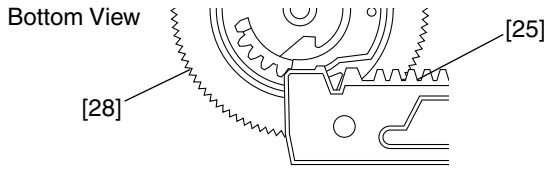
Position of pin on [22]

Fig. DM13

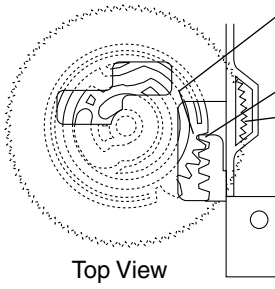


Position of Mode Lever when installed





Align [25] and [28] as shown.



When reassembling [28], meet the first groove on [28] to the first tooth on [44] as shown.

Top View

Fig. DM14

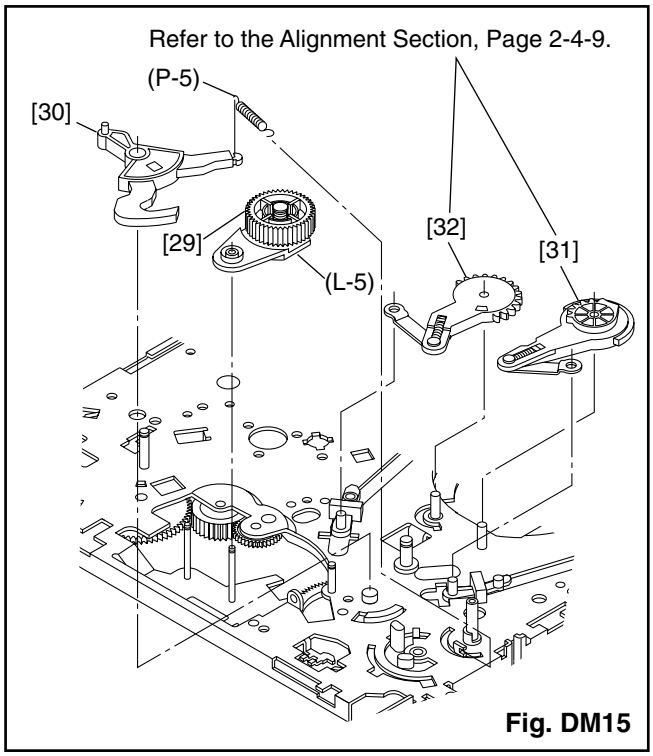


Fig. DM15

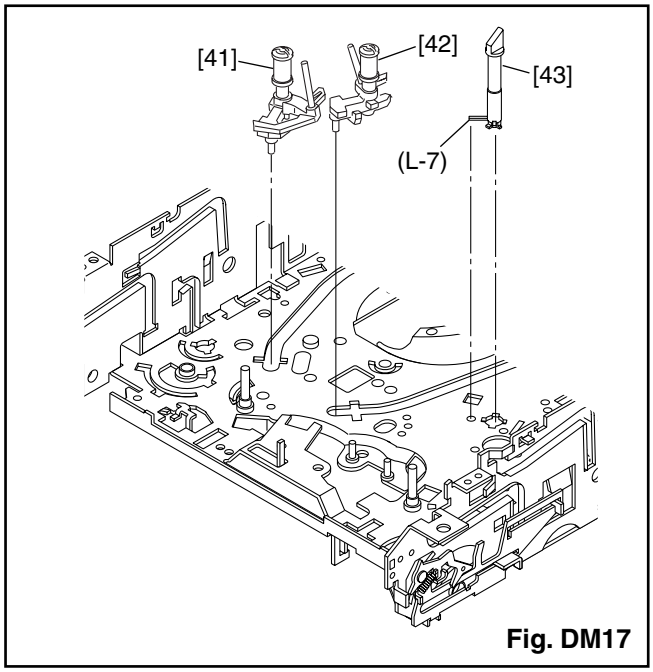


Fig. DM17

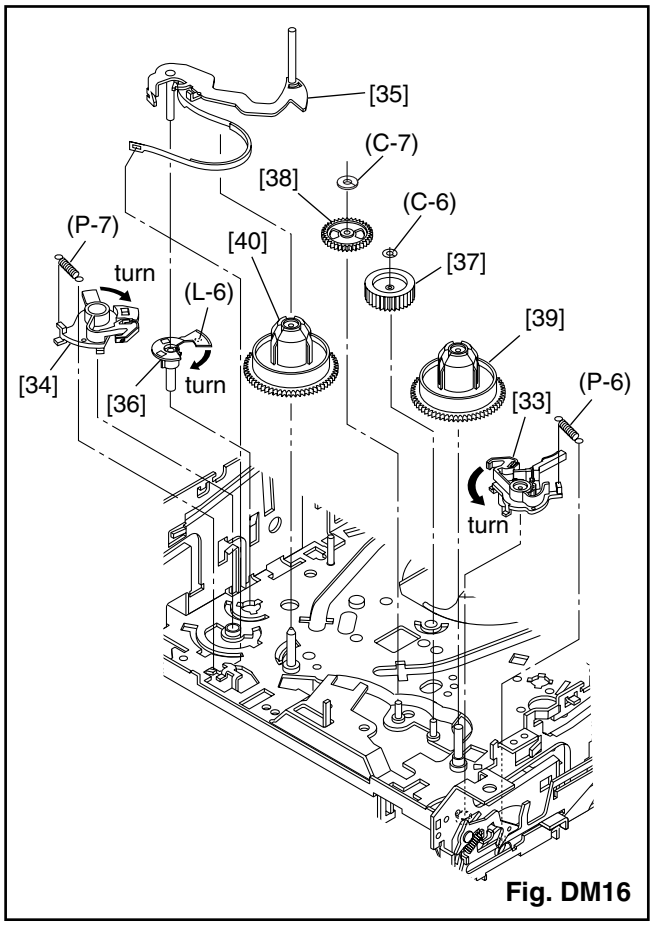


Fig. DM16

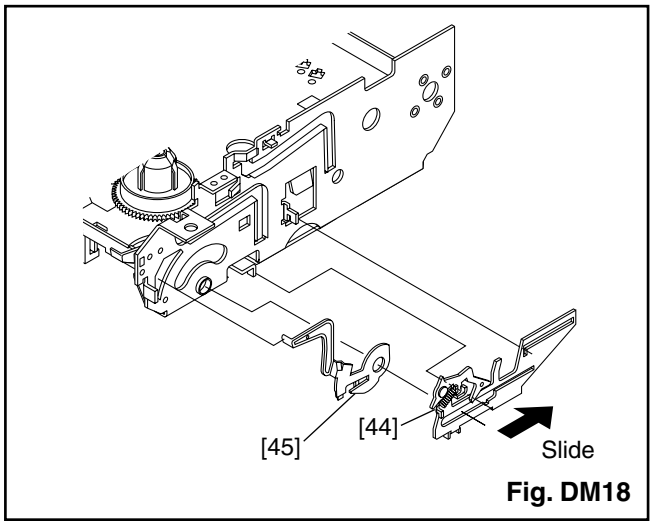


Fig. DM18

ALIGNMENT PROCEDURES OF MECHANISM

The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.

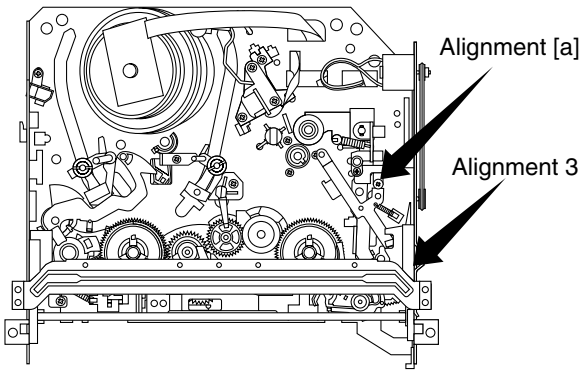
All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

IMPORTANT:

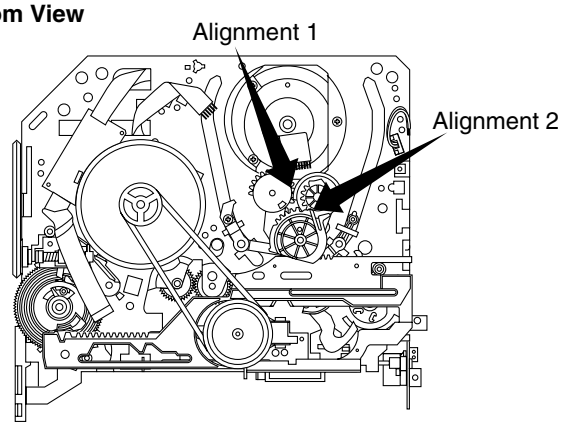
If any one of these alignments is not performed properly, even if off by only one tooth, the unit will unload or stop and it may result in damage to the mechanical or electrical parts.

Alignment points in Eject Position

Top View



Bottom View



Alignment [a] can be done independently of any other alignment.

Fig. AL1

Alignment 1

Loading Arm, S and T Assembly

Install Loading Arm S and T Assembly so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Mode Gear

Keeping the two triangles pointing at each other, install the Loading Arm T Assembly so that the last tooth of the gear meets the most inside teeth of the Mode Gear. See Fig. AL2.

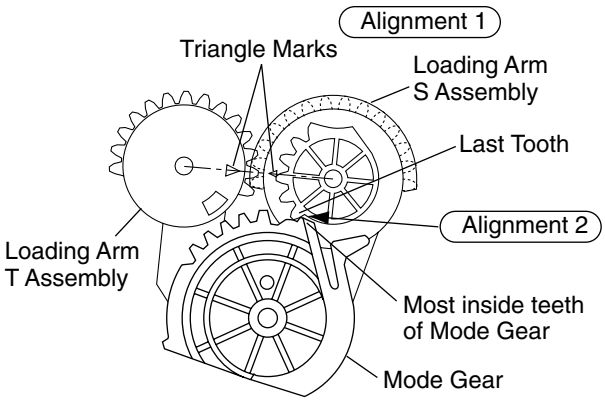


Fig. AL2

Alignment [a]

Tape Guide Assembly

Measurement of the screw must be as specified in Fig. AL3.

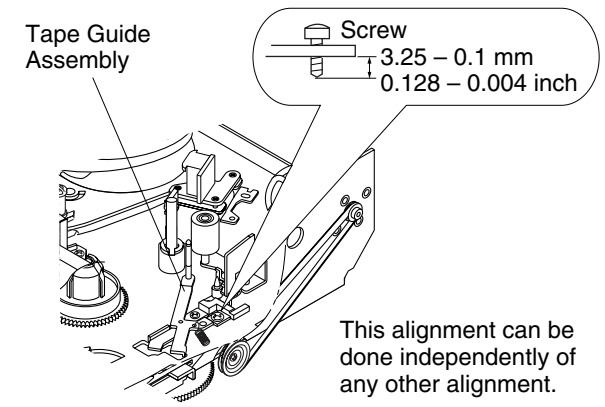


Fig. AL3

Alignment 3

Cam Gear (A), Rack Assembly

Install the Rack Assembly so that the first tooth on the gear of the Rack Assembly meets the first groove on the Cam Gear (A) as shown in Fig. AL4.

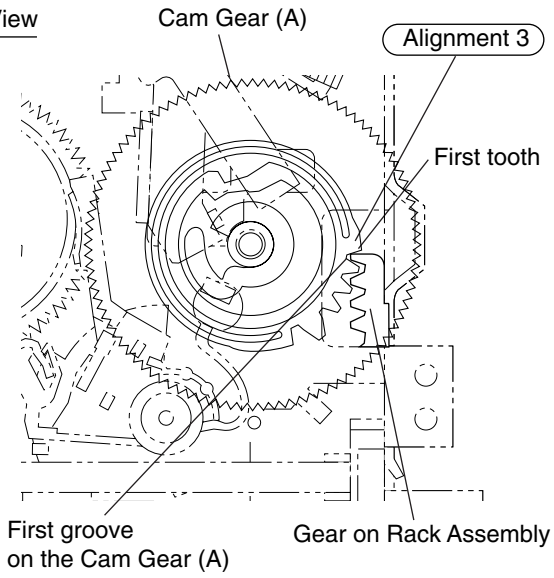


Fig. AL4

EXPLODED VIEWS AND PARTS LIST SECTION

VIDEO CASSETTE RECORDER

EWV601A/KVS600A/SSV6001A

Sec. 3: Exploded views and Parts List Section
- **Exploded views**
- **Parts List**

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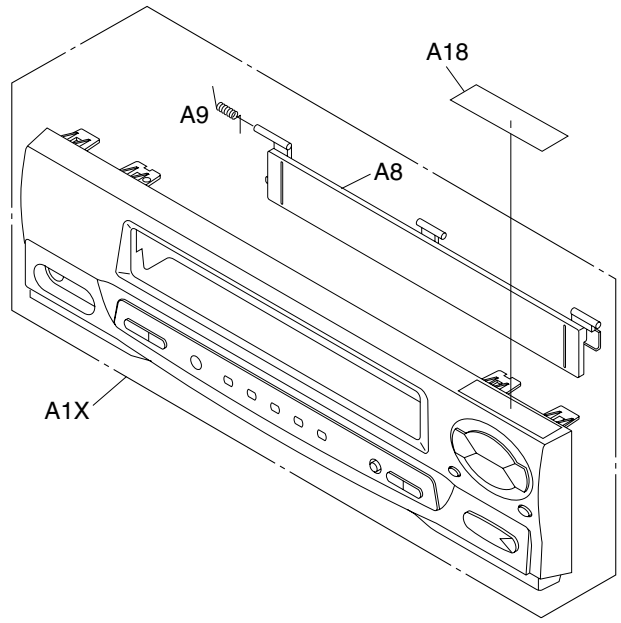
Electrical Parts List 3-3-1
Deck Parts List 3-4-1

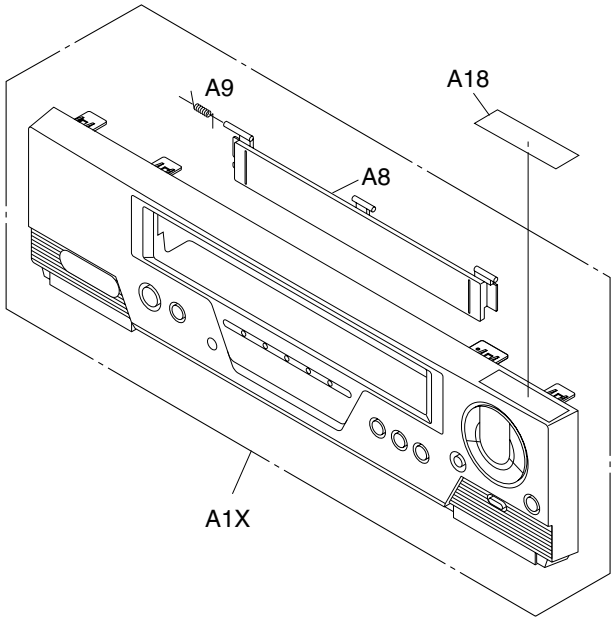
EXPLODED VIEWS

Front Panel

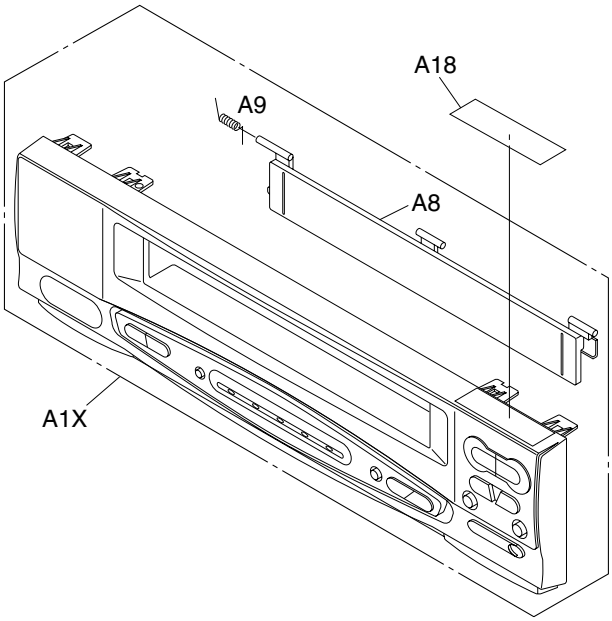
EWV601A



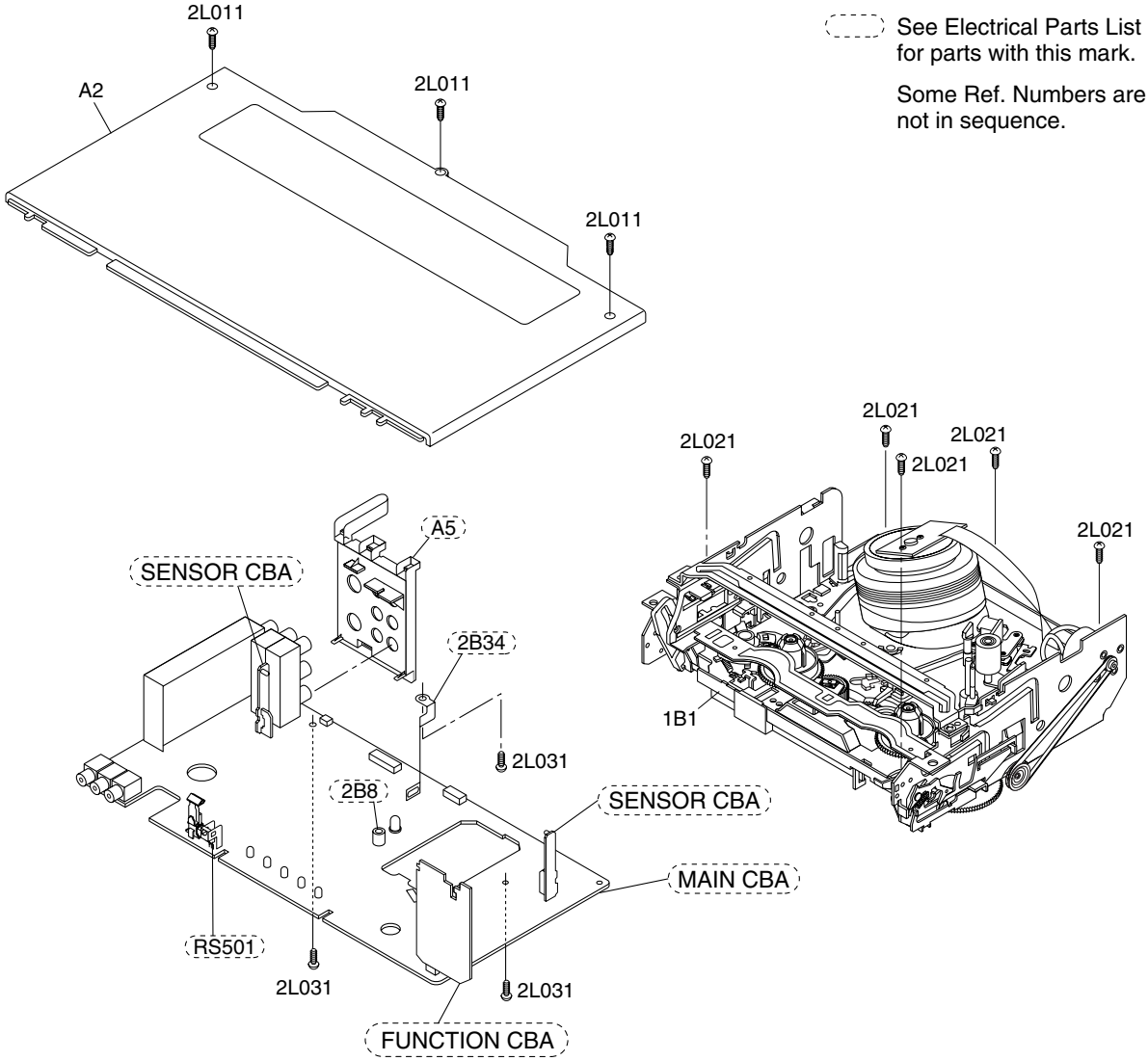
KVS600A



SSV6001A

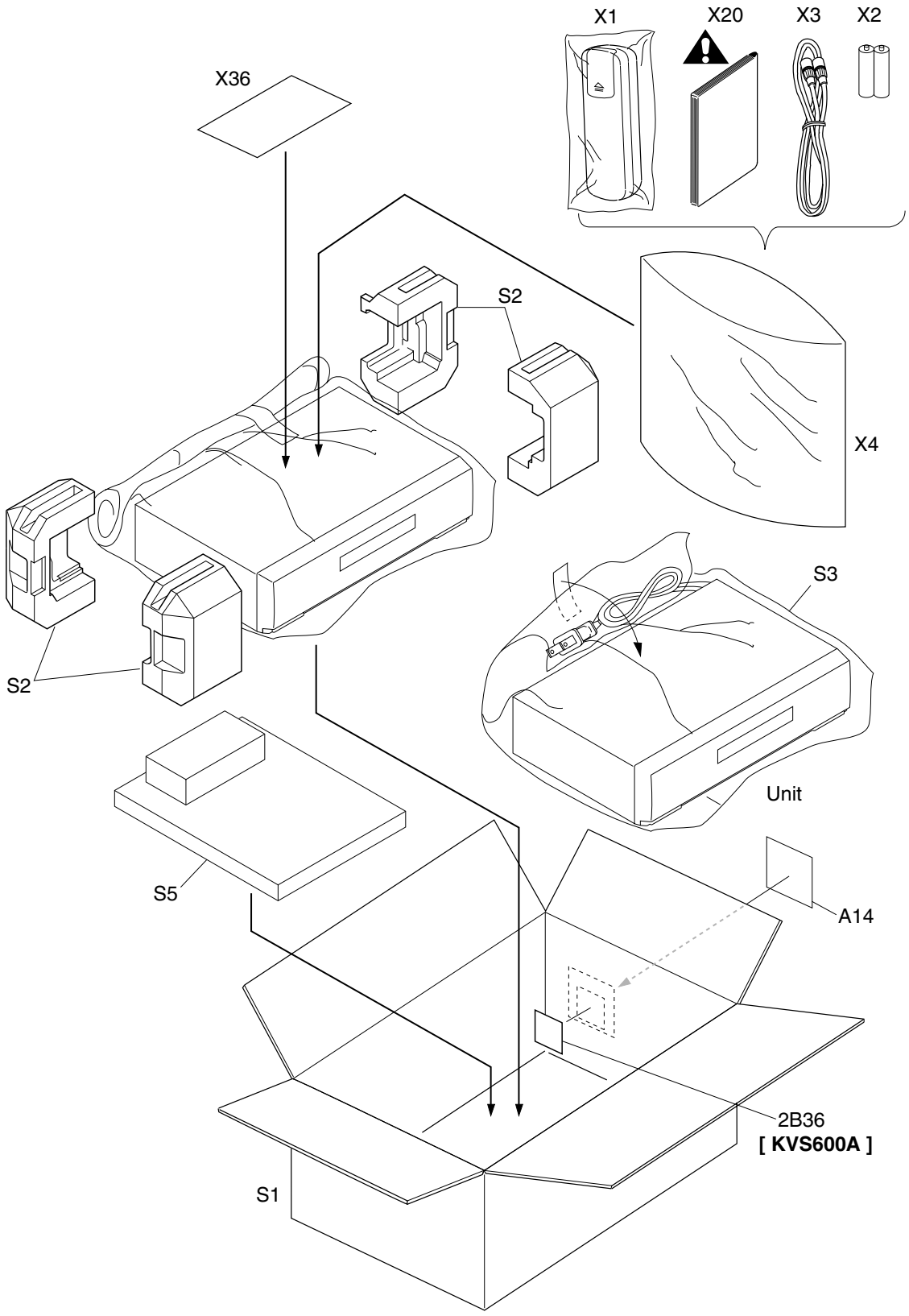


Cabinet


2L011
A2
2L011
2L011
See Electrical Parts List for parts with this mark.
Some Ref. Numbers are not in sequence.
2L021
2L021
2L021
2L021
2L021
1B1
A5
SENSOR CBA
2B34
2L031
2B8
SENSOR CBA
MAIN CBA
RS501
2L031
2L031
FUNCTION CBA
A10
A14
AC001
A3

Packing

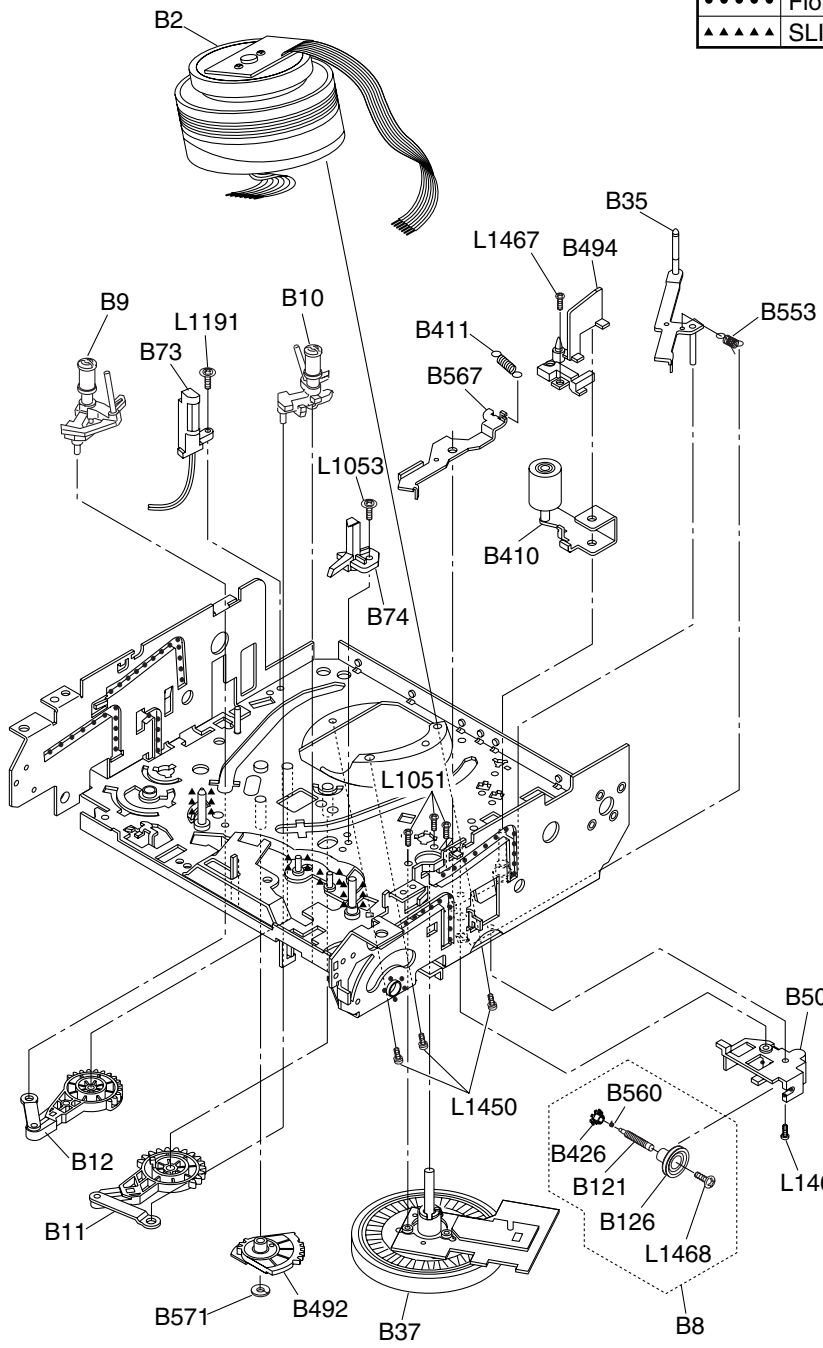
Some Ref. Numbers are not in sequence.

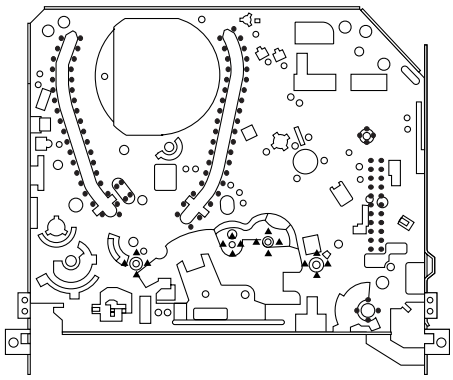


DECK EXPLODED VIEWS

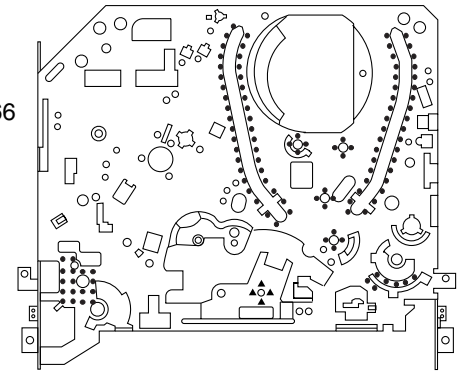
Deck Mechanism View 1

Mark	Description	Part No.
●●●●●	Floil G-374G (Blue grease)	0VZZ00109
▲▲▲▲▲	SLIDUS OIL #150	0VZZ00226





Chassis Assembly
Top View (Lubricating Point)

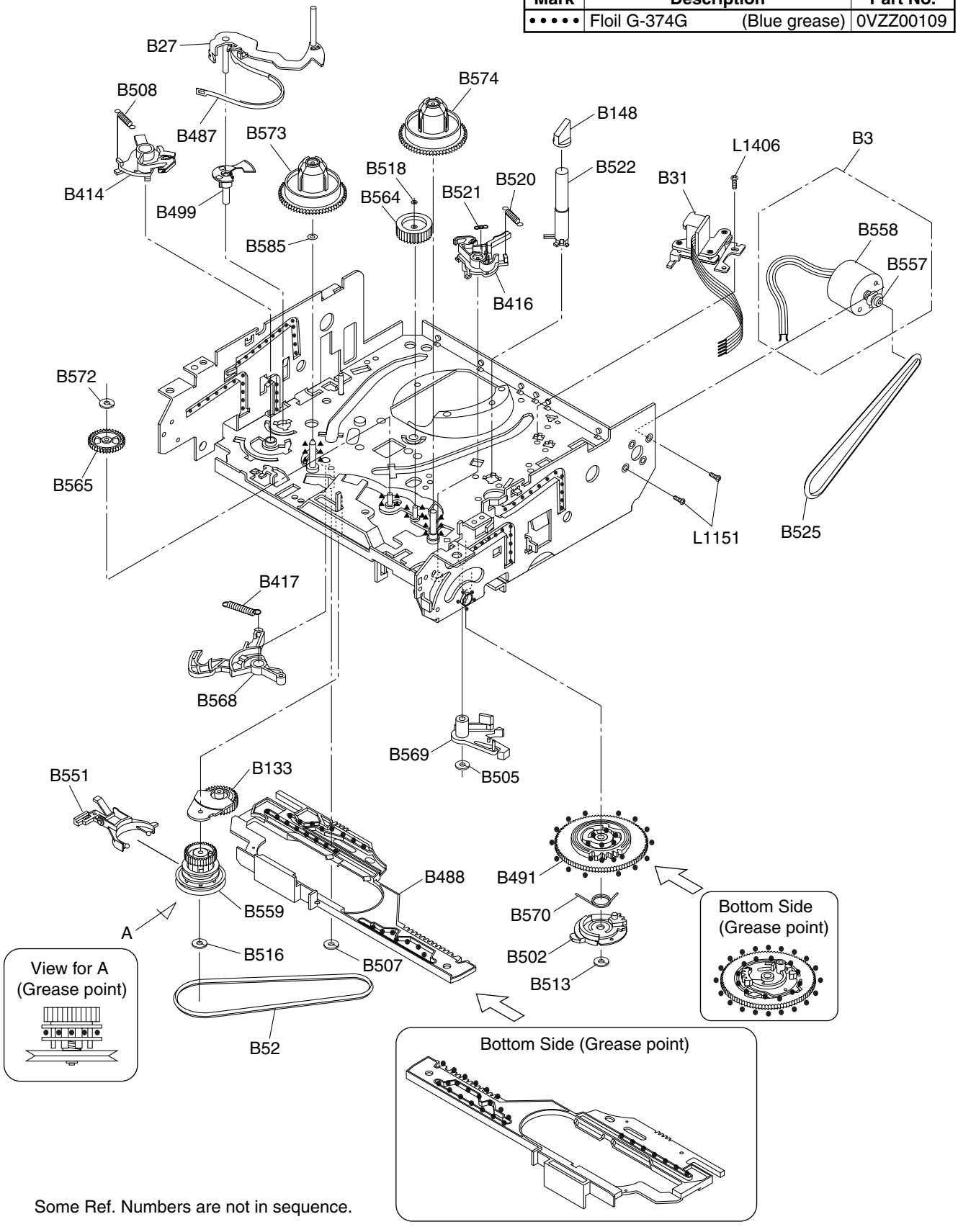


Chassis Assembly
Bottom View (Lubricating Point)

Some Ref. Numbers are not in sequence.

Deck Mechanism View 2

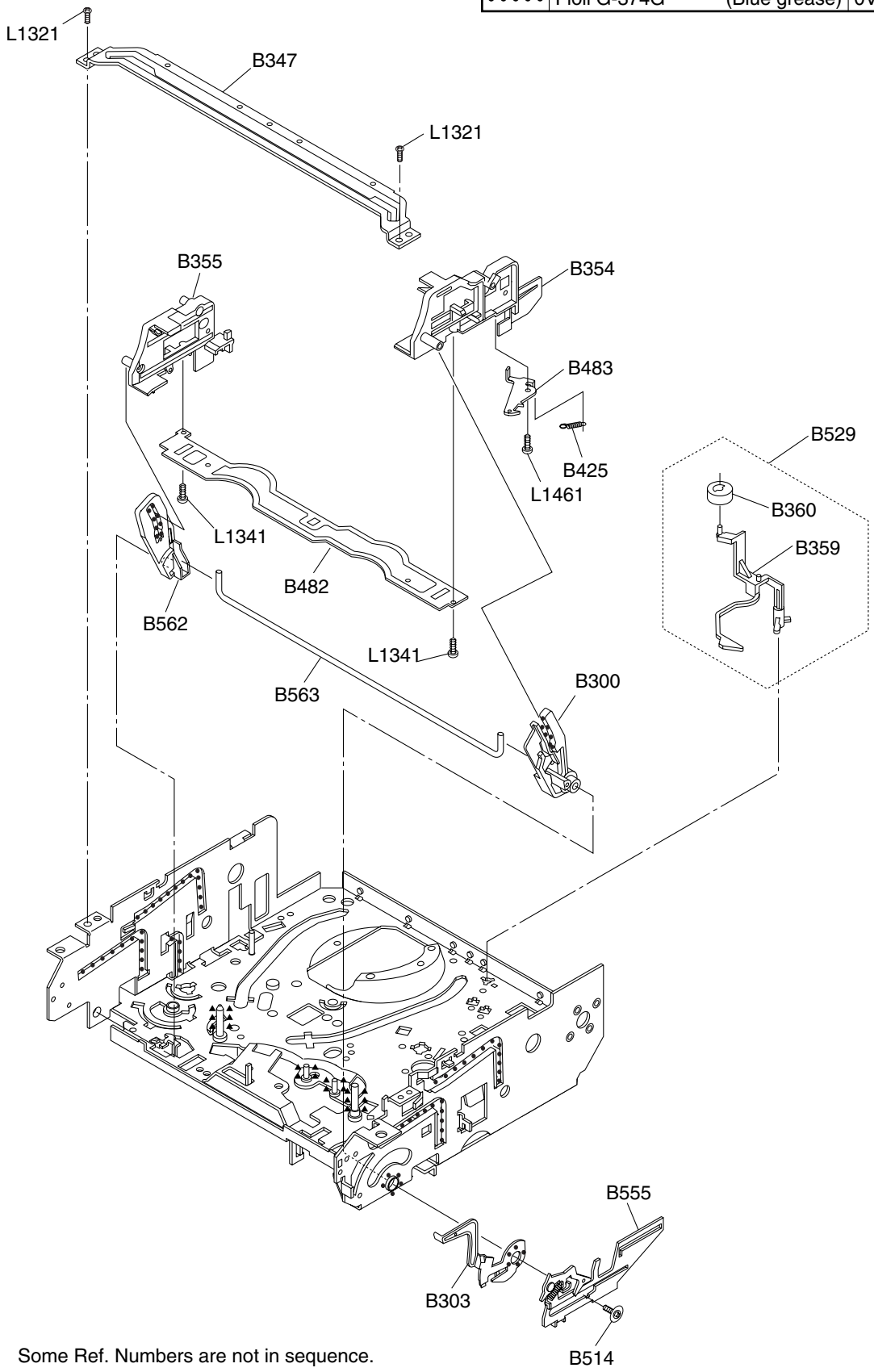
Mark	Description	Part No.
• • • • •	Floil G-374G (Blue grease)	0VZZ00109



Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

Mark	Description		Part No.
• • • • •	Floil G-374G	(Blue grease)	0VZZ00109



Some Ref. Numbers are not in sequence.

MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that not assigned part numbers (---------) are not available.
2. Comparison Chart of Models and Marks

Model	Mark
EWV601A	A
KVS600A	B
SSV6001A	C

Ref. No.	Mark	Description	Part No.
A1X	A	FRONT ASSEMBLY HB4J0UD	0VM203398
A1X	B	FRONT ASSEMBLY HB431UD	0VM203431
A1X	C	FRONT ASSEMBLY HB4L0UD	0VM203438
A2	A,C	CASE, TOP(U23) H7700UD	0VM100923B
A2	B	CASE, TOP HB200UD	0VM305132
A3		CHASSIS HB200UD	0VM000152
A5		JACK BOARD(HI-FI) H36D4PX:PHILIPPINE (See Electrical Parts List)	
A8		DOOR, CASSETTE H7930UD	0VM411490
A9		SPRING, DOOR H7220UD U15	0VM408617
A10⚠	A	LABEL, RATING HB4J0UD	---------
A10⚠	B	LABEL, RATING HB431UD	---------
A10⚠	C	LABEL, RATING HB4L0UD	---------
A14		LABEL, BAR CODE HB400UD	0VM412678
A14	A	LABEL, BAR CODE HB4J0UD	0VM412836
A14	B	LABEL, BAR CODE HB431UD	0VM412845
A14	C	LABEL, BAR CODE HB4L0UD	0VM412926
A18	A	LABEL, TELEPHONE NUMBER H7931UD(EMERSON)	0VM411684
A18	B,C	LABEL, TELEPHONE NUMBER H5730UD(SYLVANIA)	0VM410320
AC001⚠		AC CORD A0A0280-007 or (See Electrical Parts List)	
⚠		AC CORD PB8K9F9110A-057 (See Electrical Parts List)	
1B1		DECK ASSEMBLY CZD011/VM1460	N1460FL
2B8		BUSH, LED(F) H3700UD (See Electrical Parts List)	
2B34		SHIELD, HEAD HB200UD (See Electrical Parts List)	
2B36	B	LABEL, EAS(H3761UD) MAKER NO.ZLLFNSLE1	0VM410203
2L011		SCREW, P-TIGHT 3X10 BIND HEAD+	GBEP3100
2L021		SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100
2L031		SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
RS501		REMOTE RECEIVER MIM-93M9DKF or (See Electrical Parts List)	
		REMOTE RECEIVER PIC-37042LQ (See Electrical Parts List)	
PACKING			
S1	A	GIFT BOX CARTON HB4J0UD	0VM305224A
S1	B	GIFT BOX CARTON HB431UD	0VM305226
S1	C	GIFT BOX CARTON HB4L0UD	0VM305268A
S2		STYROFOAM HB300UD	0VM203400
S3		SET SHEET HB200UD	0VM412843
S5		PAD HB200UD	0VM412945
ACCESSORIES			
X1		REMOTE CONTROL UNIT 364/CRC006 or	NA301UD
		REMOTE CONTROL UNIT 364/CRC006	NA351UD
X2		DRY BATTERY R6P/2S or	XB0M451T0001
		DRY BATTERY(SUNRISE) R6SSE/2S	XB0M451MS002
X3		RF CABLE 2.5C-2V	WPZ0901TM002
X4		ACCESSORY BAG H3600UD T=0.03	0VM409454
X20⚠	A	OWNER'S MANUAL HB4J0UD	0VMN02876
X20⚠	B	OWNER'S MANUAL HB431UD	0VMN02886
X20⚠	C	OWNER'S MANUAL HB4L0UD	0VMN02904
X36	A	RETURN STOP SHEET HB4J0UD	0VM412833
X36	B,C	RETURN STOP SHEET HB430UD	0VM412832

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

3. LED Type:
   When it is necessary to replace one or more of the following diodes, all five should be replaced: D595, D596, D597, D598, D599.
4. Comparison Chart of Models and Marks

Model	Mark
EWV601A	A
KVS600A	B
SSV6001A	C

MCV CBA

Ref. No.	Mark	Description	Part No.
	A B C	MCV CBA MCV CBA MCV CBA Consists of the following	0VSA12242 0VSA12258 0VSA12293
		MAIN CBA (MCV-A) FUNCTION CBA (MCV-B) SENSOR CBA	---------- ---------- 0VSA12195

MAIN CBA

Ref. No.	Mark	Description	Part No.
		MAIN CBA (MCV-A) Consists of the following	----------
		CAPACITORS	
C001⚠		METALLIZED FILM CAP. 0.01μF/275V K or	CT2E103HJE05
⚠		METALLIZED FILM CAP. 0.01μF/250V K or	CT2E103DC011
⚠		METALLIZED FILM CAP. 0.01μF/250V M	CT2E103MS037
C002⚠		SAFETY CAP. 2200pF/250V or	CCG2EMA0F222
⚠		SAFETY CAP. 2200pF/250V	CA2E222MR046
C003		ELECTROLYTIC CAP. 82μF/200V M or	CA2D820S6014
		ELECTROLYTIC CAP. 82μF/200V M	CA2D820NC088
C004		CERAMIC CAP. B K 120pF/500V	CCD2JKP0B121
C007		CERAMIC CAP. B K 3300pF/50V	CCD1JKS0B332
C009		CERAMIC CAP.(AX) X K 5600pF/16V	CCA1CKT0X562
C013		ELECTROLYTIC CAP. 10μF/50V M H7	CE1JMAVSL100
C018		ELECTROLYTIC CAP. 470μF/16V M or	CE1CMASDL471
		ELECTROLYTIC CAP. 470μF/16V M	CE1CMASTL471
C020		ELECTROLYTIC CAP. 1000μF/10V M or	CE1AMZPDL102
		ELECTROLYTIC CAP. 1000μF/10V M	CE1AMZPTL102
C024		CERAMIC CAP. SL J 390pF/50V	CCD1JJSSL391
C026		ELECTROLYTIC CAP. 2.2μF/250V M or	CA2E2R2S6009
		ELECTROLYTIC CAP. 2.2μF/250V M(105°C)	CE2EMASTH2R2
C031		CERAMIC CAP.(AX) X K 5600pF/16V	CCA1CKT0X562
C051		ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMAVSL100
C065		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C070		CERAMIC CAP.(AX) B K 100pF/50V or	CCA1JKT0B101
		CERAMIC CAP.(AX) B J 100pF/50V	CCA1JJT0B101
C253		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C255		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZ30F103
C256		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C257		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C301		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C303		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C304		CHIP CERAMIC CAP.(MELF) Y K 1000pF/35V or	CZM1GKB0Y102
		CHIP CERAMIC CAP.(MELF) Y K 1000pF/35V or	CZM1GK30Y102
		CHIP CERAMIC CAP. B K 1000pF/50V or	CHD1JKB0B102
		CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C305		CHIP CERAMIC CAP.(MELF) Y K 2200pF/35V or	CZM1GKB0Y222
		CHIP CERAMIC CAP.(MELF) Y K 2200pF/35V or	CZM1GK30Y222
		CHIP CERAMIC CAP. B K 2200pF/50V or	CHD1JKB0B222
		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C306		CHIP CERAMIC CAP.(MELF) W K 470pF/50V or	CZM1JKB0B471
		CHIP CERAMIC CAP.(MELF) W K 470pF/50V or	CZM1JK30B471
		CHIP CERAMIC CAP. CH J 470pF/50V or	CHD1JJBCH471
		CHIP CERAMIC CAP. CG J 470pF/50V or	CHD1JJBCG471
		CHIP CERAMIC CAP. CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C307		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C308		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C309		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C310		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C311		CHIP CERAMIC CAP. CH J 390pF/50V or	CHD1JJBCH391
		CHIP CERAMIC CAP. CG J 390pF/50V or	CHD1JJBCG391
		CHIP CERAMIC CAP. CH J 390pF/50V or	CHD1JJ3CH391
		CHIP CERAMIC CAP. CG J 390pF/50V	CHD1JJ3CG391

Ref. No.	Mark	Description	Part No.
C312		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C314		CHIP CERAMIC CAP.(MELF) SL J 100pF/ 50V or	CZM1JJBSL101
		CHIP CERAMIC CAP.(MELF) SL J 100pF/ 50V or	CZM1JJ3SL101
		CHIP CERAMIC CAP. CH J 100pF/50V or	CHD1JJBCH101
		CHIP CERAMIC CAP. CG J 100pF/50V or	CHD1JJBCG101
		CHIP CERAMIC CAP. CH J 100pF/50V or	CHD1JJ3CH101
		CHIP CERAMIC CAP. CG J 100pF/50V	CHD1JJ3CG101
C315		CHIP CERAMIC CAP.(MELF) SL J 100pF/ 50V or	CZM1JJBSL101
		CHIP CERAMIC CAP.(MELF) SL J 100pF/ 50V or	CZM1JJ3SL101
		CHIP CERAMIC CAP. CH J 100pF/50V or	CHD1JJBCH101
		CHIP CERAMIC CAP. CG J 100pF/50V or	CHD1JJBCG101
		CHIP CERAMIC CAP. CH J 100pF/50V or	CHD1JJ3CH101
		CHIP CERAMIC CAP. CG J 100pF/50V	CHD1JJ3CG101
C317		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C320		ELECTROLYTIC CAP. 22μF/6.3V M H7	CE0KMAVSL220
C321		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C322		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C324		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C325		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C326		ELECTROLYTIC CAP. 22μF/6.3V M H7	CE0KMAVSL220
C328		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C329		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C330		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C332		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C333		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C335		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C337		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C339		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C340		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C341		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C344		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C345		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C346		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C347		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C348		CHIP CERAMIC CAP. B K 0.047μF/50V or	CHD1JKB0B473
		CHIP CERAMIC CAP. B K 0.047μF/25V or	CHD1EKB0B473
		CHIP CERAMIC CAP. B K 0.047μF/50V or	CHD1JK30B473
		CHIP CERAMIC CAP. B K 0.047μF/25V	CHD1EK30B473
C349		CHIP CERAMIC CAP. B K 0.047μF/50V or	CHD1JKB0B473
		CHIP CERAMIC CAP. B K 0.047μF/25V or	CHD1EKB0B473

Ref. No.	Mark	Description	Part No.
		CHIP CERAMIC CAP. B K 0.047μF/50V or	CHD1JK30B473
		CHIP CERAMIC CAP. B K 0.047μF/25V	CHD1EK30B473
C351		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C353		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C354		CHIP CERAMIC CAP. CH J 68pF/50V or	CHD1JJBCH680
		CHIP CERAMIC CAP. CG J 68pF/50V or	CHD1JJBCG680
		CHIP CERAMIC CAP. CH J 68pF/50V or	CHD1JJ3CH680
		CHIP CERAMIC CAP. CG J 68pF/50V	CHD1JJ3CG680
C360		CERAMIC CAP.(AX) B K 100pF/50V or	CCA1JKT0B101
		CERAMIC CAP.(AX) B J 100pF/50V	CCA1JJT0B101
C391		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASDL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASTL101
C392		ELECTROLYTIC CAP. 470μF/6.3V M or	CE0KMASDL471
		ELECTROLYTIC CAP. 470μF/6.3V M	CE0KMASTL471
C393		CERAMIC CAP.(AX) X K 4700pF/16V	CCA1CKT0X472
C401		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C404		ELECTROLYTIC CAP. 22μF/6.3V M H7	CE0KMAVSL220
C405		ELECTROLYTIC CAP. 33μF/6.3V M H7	CE0KMAVSL330
C408		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C409		CHIP CERAMIC CAP.(MELF) Y K 6800pF/ 16V or	CZM1CKB0Y682
		CHIP CERAMIC CAP.(MELF) Y K 6800pF/ 16V	CZM1CK30Y682
C410		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C411		CHIP CERAMIC CAP.(MELF) Y K 2200pF/ 35V or	CZM1GKB0Y222
		CHIP CERAMIC CAP.(MELF) Y K 2200pF/ 35V or	CZM1GK30Y222
		CHIP CERAMIC CAP. B K 2200pF/50V or	CHD1JKB0B222
		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C413		CERAMIC CAP.(AX) Y M 0.012μF/16V	CCA1CMT0Y123
C415		ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMAVSL100
C416		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C417		CHIP CERAMIC CAP.(MELF) Y K 1000pF/ 35V or	CZM1GKB0Y102
		CHIP CERAMIC CAP.(MELF) Y K 1000pF/ 35V or	CZM1GK30Y102
		CHIP CERAMIC CAP. B K 1000pF/50V or	CHD1JKB0B102
		CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C418		CERAMIC CAP.(AX) X K 2700pF/16V	CCA1CKT0X272
C419		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C422		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C423		ELECTROLYTIC CAP. 220μF/6.3V M H7	CE0KMAVSL221
C424		CERAMIC CAP. B K 470pF/100V or	CCD2AKP0B471
		CERAMIC CAP. B K 470pF/500V	CCD2JKS0B471
C425		FILM CAP.(P) 0.018μF/100V J or	CMA2AJS00183
		FILM CAP.(P) 0.018μF/50V J	CA1J183MS029
C450		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JKB0B223
		CHIP CERAMIC CAP. B K 0.022μF/25V or	CHD1EKB0B223

Ref. No.	Mark	Description	Part No.
		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JK30B223
		CHIP CERAMIC CAP. B K 0.022μF/25V	CHD1EK30B223
C451		ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASDLR47
		ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASTLR47
C452		ELECTROLYTIC CAP. 0.1μF/50V M H7	CE1JMAVSLR10
C453		ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMAVSL100
C454		ELECTROLYTIC CAP. 2.2μF/50V M H7	CE1JMAVSL2R2
C455		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C456		ELECTROLYTIC CAP. 22μF/6.3V M H7	CE0KMAVSL220
C457		ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMAVSL100
C458		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C459		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C460		ELECTROLYTIC CAP. 22μF/6.3V M H7	CE0KMAVSL220
C461		CHIP CERAMIC CAP.(MELF) Y K 4700pF/ 16V or	CZM1CKB0Y472
		CHIP CERAMIC CAP.(MELF) Y K 4700pF/ 16V or	CZM1CK30Y472
		CHIP CERAMIC CAP. B K 4700pF/50V or	CHD1JKB0B472
		CHIP CERAMIC CAP. B K 4700pF/50V	CHD1JK30B472
C462		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C463		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C464		ELECTROLYTIC CAP. 220μF/6.3V M H7	CE0KMAVSL221
C465		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C466		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JKB0B223
		CHIP CERAMIC CAP. B K 0.022μF/25V or	CHD1EKB0B223
		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JK30B223
		CHIP CERAMIC CAP. B K 0.022μF/25V	CHD1EK30B223
C467		CHIP CERAMIC CAP.(MELF) Y K 4700pF/ 16V or	CZM1CKB0Y472
		CHIP CERAMIC CAP.(MELF) Y K 4700pF/ 16V or	CZM1CK30Y472
		CHIP CERAMIC CAP. B K 4700pF/50V or	CHD1JKB0B472
		CHIP CERAMIC CAP. B K 4700pF/50V	CHD1JK30B472
C468		ELECTROLYTIC CAP. 22μF/6.3V M H7	CE0KMAVSL220
C469		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C470		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C471		ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMAVSL100
C472		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C473		ELECTROLYTIC CAP. 2.2μF/50V M H7	CE1JMAVSL2R2
C474		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C475		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C476		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C477		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C478		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C479		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C480		ELECTROLYTIC CAP. 0.1μF/50V M H7	CE1JMAVSLR10
C481		ELECTROLYTIC CAP. 0.1μF/50V M H7	CE1JMAVSLR10
C482		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C483		ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C484		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C485		ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C486		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C487		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C488		ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMAVSL4R7
C489		ELECTROLYTIC CAP. 4.7μF/50V M H7	CE1JMAVSL4R7
C491		ELECTROLYTIC CAP. 4.7μF/50V M H7	CE1JMAVSL4R7
C494		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103

Ref. No.	Mark	Description	Part No.
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C495		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C497		ELECTROLYTIC CAP. 47μF/16V M H7	CE1CMAVSL470
C498		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C500		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZTFZ104
C502		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C503		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JKB0B223
		CHIP CERAMIC CAP. B K 0.022μF/25V or	CHD1EKB0B223
		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JK30B223
		CHIP CERAMIC CAP. B K 0.022μF/25V	CHD1EK30B223
C504A		ELECTROLYTIC CAP. 330μF/6.3V M H7	CE0KMASSL331
C507		CHIP CERAMIC CAP.(MELF) SL J 22pF/50V or	CZM1JJBSL220
		CHIP CERAMIC CAP.(MELF) SL J 22pF/50V or	CZM1JJ3SL220
		CHIP CERAMIC CAP. CH J 22pF/50V or	CHD1JJBCH220
		CHIP CERAMIC CAP. CG J 22pF/50V or	CHD1JJBCG220
		CHIP CERAMIC CAP. CH J 22pF/50V or	CHD1JJ3CH220
		CHIP CERAMIC CAP. CG J 22pF/50V	CHD1JJ3CG220
C508		CHIP CERAMIC CAP.(MELF) SL J 18pF/50V or	CZM1JJBSL180
		CHIP CERAMIC CAP.(MELF) SL J 18pF/50V or	CZM1JJ3SL180
		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJBCH180
		CHIP CERAMIC CAP. CG J 18pF/50V or	CHD1JJBCG180
		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJ3CH180
		CHIP CERAMIC CAP. CG J 18pF/50V	CHD1JJ3CG180
C509		CHIP CERAMIC CAP. B K 0.01μF/50V or	CHD1JKB0B103
		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JK30B103
C510		CHIP CERAMIC CAP. B K 0.047μF/50V or	CHD1JKB0B473
		CHIP CERAMIC CAP. B K 0.047μF/25V or	CHD1EKB0B473
		CHIP CERAMIC CAP. B K 0.047μF/50V or	CHD1JK30B473
		CHIP CERAMIC CAP. B K 0.047μF/25V	CHD1EK30B473
C514		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JKB0B223
		CHIP CERAMIC CAP. B K 0.022μF/25V or	CHD1EKB0B223
		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHD1JK30B223
		CHIP CERAMIC CAP. B K 0.022μF/25V	CHD1EK30B223
C520		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C522		ELECTROLYTIC CAP. 220μF/6.3V M H7	CE0KMAVSL221
C529		ELECTROLYTIC CAP. 22μF/10V M H7	CE1AMAVSL220
C532		CHIP CERAMIC CAP.(MELF) SL J 100pF/ 50V or	CZM1JJBSL101
		CHIP CERAMIC CAP.(MELF) SL J 100pF/ 50V or	CZM1JJ3SL101
		CHIP CERAMIC CAP. CH J 100pF/50V or	CHD1JJBCH101
		CHIP CERAMIC CAP. CG J 100pF/50V or	CHD1JJBCG101
		CHIP CERAMIC CAP. CH J 100pF/50V or	CHD1JJ3CH101
		CHIP CERAMIC CAP. CG J 100pF/50V	CHD1JJ3CG101
C534		CHIP CERAMIC CAP.(MELF) SL J 27pF/50V or	CZM1JJBSL270
		CHIP CERAMIC CAP.(MELF) SL J 27pF/50V or	CZM1JJ3SL270
		CHIP CERAMIC CAP. CH J 27pF/50V or	CHD1JJBCH270

Ref. No.	Mark	Description	Part No.
		CHIP CERAMIC CAP. CG J 27pF/50V or	CHD1JJBCG270
		CHIP CERAMIC CAP. CH J 27pF/50V or	CHD1JJ3CH270
		CHIP CERAMIC CAP. CG J 27pF/50V	CHD1JJ3CG270
C546		ELECTROLYTIC CAP. 47μF/16V M H7	CE1CMAVSL470
C702		ELECTROLYTIC CAP. 100μF/6.3V H7	CE0KMAVSL101
C703		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZB0F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V or	CHD1JZBFZ104
		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1μF/50V	CHD1JZ3FZ104
C705		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V or	CZM1CZB0F103
		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/ 16V	CZM1CZ30F103
C709		ELECTROLYTIC CAP. 0.22μF/50V M or	CE1JMASDLR22
		ELECTROLYTIC CAP. 0.22μF/50V M	CE1JMASTLR22
C710		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C751		CERAMIC CAP.(AX) SL J 68pF/50V	CCA1JJTSL680
C853		CHIP CERAMIC CAP.(MELF) B K 180pF/50V or	CZM1JKB0B181
		CHIP CERAMIC CAP.(MELF) B K 180pF/50V or	CZM1JK30B181
		CHIP CERAMIC CAP. CH J 180pF/50V or	CHD1JJBCH181
		CHIP CERAMIC CAP. CG J 180pF/50V or	CHD1JJBCG181
		CHIP CERAMIC CAP. CH J 180pF/50V or	CHD1JJ3CH181
		CHIP CERAMIC CAP. CG J 180pF/50V	CHD1JJ3CG181
C855		ELECTROLYTIC CAP. 0.22μF/50V M H7	CE1JMAVSLR22
C858		CHIP CERAMIC CAP.(MELF) SL J 18pF/50V or	CZM1JJBSL180
		CHIP CERAMIC CAP.(MELF) SL J 18pF/50V or	CZM1JJ3SL180
		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJBCH180
		CHIP CERAMIC CAP. CG J 18pF/50V or	CHD1JJBCG180
		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJ3CH180
		CHIP CERAMIC CAP. CG J 18pF/50V	CHD1JJ3CG180
C859		CHIP CERAMIC CAP.(MELF) SL J 18pF/50V or	CZM1JJBSL180
		CHIP CERAMIC CAP.(MELF) SL J 18pF/50V or	CZM1JJ3SL180
		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJBCH180
		CHIP CERAMIC CAP. CG J 18pF/50V or	CHD1JJBCG180
		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJ3CH180
		CHIP CERAMIC CAP. CG J 18pF/50V	CHD1JJ3CG180
C860		CHIP CERAMIC CAP.(MELF) SL D 10pF/50V or	CZM1JDBSL100
		CHIP CERAMIC CAP.(MELF) SL D 10pF/50V or	CZM1JD3SL100
		CHIP CERAMIC CAP. CH D 10pF/50V or	CHD1JDBCH100
		CHIP CERAMIC CAP. CG D 10pF/50V or	CHD1JDBCG100
		CHIP CERAMIC CAP. CH D 10pF/50V or	CHD1JD3CH100
		CHIP CERAMIC CAP. CG D 10pF/50V	CHD1JD3CG100
DIODES			
D001		RECTIFIER DIODE 1N4005	NDQZ001N4005
D002		RECTIFIER DIODE 1N4005	NDQZ001N4005
D003		RECTIFIER DIODE 1N4005	NDQZ001N4005
D004		RECTIFIER DIODE 1N4005	NDQZ001N4005
D006		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D013		RECTIFIER DIODE BA157 or	NDQZ000BA157
		FAST RECOVERY DIODE ERA18-04	QDPZ0ERA1804
D015		RECTIFIER DIODE BA157 or	NDQZ000BA157
		FAST RECOVERY DIODE ERA18-04	QDPZ0ERA1804

Ref. No.	Mark	Description	Part No.
D016		SCHOTTKY BARRIER DIODE SB140 or	NDQZ000SB140
		SCHOTTKY BARRIER DIODE ERB81-004	AERB81004***
D018		ZENER DIODE DZ-9.1BSCT265 or	NDTC0DZ9R1BS
		ZENER DIODE MTZJT-779.1C	QDTC0MTZJ9R1
D031		ZENER DIODE DZ-5.6BSBT265 or	NDTB0DZ5R6BS
		ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D051		RECTIFIER DIODE BA158 or	NDQZ000BA158
		RECTIFIER DIODE ERA22-10	QDPZ0ERA2210
D052		ZENER DIODE DZ-10BSBT265 or	NDTB00DZ10BS
		ZENER DIODE MTZJT-7710B	QDTB00MTZJ10
D054		RECTIFIER DIODE RL151	NDQZ000RL151
D055		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D065		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D301		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D302		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D303		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D501		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D555		LED SIR-563ST3F P or	QPQPS1R563ST
		LED SIR-563ST3F Q	QPQQS1R563ST
D701		ZENER DIODE DZ-33BSDT265 or	NDTD00DZ33BS
		ZENER DIODE MTZJT-7733D	QDTD00MTZJ33
		LED EXCLUSIVE(A)	
D595		LED(RED) 204HD/E	NPQZ00204HDE
D596		LED(RED) 204HD/E	NPQZ00204HDE
D597		LED(RED) 204HD/E	NPQZ00204HDE
D598		LED(GREEN) 204-10GD/S957	NPQZ10GDS957
D599		LED(GREEN) 204-10GD/S957	NPQZ10GDS957
		LED EXCLUSIVE(B)	
D595		LED(RED) LTL-4211N	NPQZLTL4211N
D596		LED(RED) LTL-4211N	NPQZLTL4211N
D597		LED(RED) LTL-4211N	NPQZLTL4211N
D598		LED(GREEN) LTL-4231N	NPQZLTL4231N
D599		LED(GREEN) LTL-4231N	NPQZLTL4231N
ICS			
IC001⚠		PHOTOCOUPLER EL817A or	NPEA000EL817
⚠		PHOTOCOUPLER EL817B or	NPEB000EL817
⚠		PHOTOCOUPLER EL817C or	NPEC000EL817
⚠		PHOTOCOUPLER LTV-817B-F or	NPEB0LTV817F
⚠		PHOTOCOUPLER LTV-817C-F	NPEC0LTV817F
IC301		IC:Y/C/A LA71091M	QSZBA0RSY012
IC451		IC:HIFI LA72655M	QSZBA0RSY024
IC501		MICROCONTROLLER 16BIT M37768M6A-1C7GP	QSZAA0RMB108
COILS			
L001⚠		LINE FILTER 4.5MH SA-00411B or	LLBG00ZSA001
⚠		LINE FILTER 4.0MH LF130908-0009 or	LLBG00ZKV002
⚠		LINE FILTER 4.0MH ST0101	LLBG00ZY2013
L003		BEAD CORE B16 RH 4X3X2	XL03003XM001
L009		CHOKE COIL 47μH-K	LLBD00PKV007
L251		PCB JUMPER D0.6-P5.0	JW5.0T
L303		INDUCTOR 220μH-K-26T	LLAXKATTU221
L304		CHOKE COIL 47μH-K	LLBD00PKV007
L421		INDUCTOR 47μH-K-5FT	LLARKBSTU470
L422		PCB JUMPER D0.6-P5.0	JW5.0T
L452		PCB JUMPER D0.6-P5.0	JW5.0T

Ref. No.	Mark	Description	Part No.
L501		PCB JUMPER D0.6-P5.0	JW5.0T
L502		INDUCTOR 100μH-K-26T	LLAXKATTU101
L503		CHOKE COIL 47μH-K	LLBD00PKV007
L701		INDUCTOR 4.7μH-K-26T	LLAXKATTU4R7
L851		INDUCTOR 1.8μH-K-26T	LLAXKATTU1R8
L852		INDUCTOR 12μH-K-26T	LLAXKATTU120
TRANSISTORS			
Q001		FET 2SK3374 or	QFWZ02SK3374
		FET 2SK3472 or	QFWZ02SK3472
		FET 2SK2599	QFQZ02SK2599
Q002		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR 2SC2785(K) or	QQSK02SC2785
		TRANSISTOR 2SC1815-BL(TPE2)	QQS202SC1815
Q031		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q052		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR BA1F4M-T	QQSZ00BA1F4M
Q055		TRANSISTOR KTC3198(Y) or	NQSY0KTC3198
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
		TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
		TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
		TRANSISTOR 2SC3331(U)	QSC3331UNPAA
Q056		TRANSISTOR KTC3203(Y) or	NQSY0KTC3203
		TRANSISTOR 2SC2120-Y(TPE2)	QQSY02SC2120
Q065		TRANSISTOR KTA1267(Y) or	NQSY0KTA1267
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR 2SA1175(J) or	QQSJ02SA1175
		TRANSISTOR 2SA1175(H) or	QQSH02SA1175
		TRANSISTOR 2SA1175(F)	QQSF02SA1175
Q301		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q302		TRANSISTOR KTC3193(Y)	NQSY0KTC3193
Q303		TRANSISTOR KTC3193(Y)	NQSY0KTC3193
Q391		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q421		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q422		TRANSISTOR KTC3203(Y) or	NQSY0KTC3203
		TRANSISTOR 2SC2120-Y(TPE2)	QQSY02SC2120
Q425		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q426		CHIP TRANSISTOR RN1511(TE85R) or	QQ2Z00RN1511
		CHIP TRANSISTOR FMG4A T148	QQ2Z000FMG4A
Q501		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR 2SC2785(K) or	QQSK02SC2785
		TRANSISTOR 2SC1815-BL(TPE2)	QQS202SC1815
Q506		PHOTO TRANSISTOR PT204-6B-12 or	NPWZT2046B12
		PHOTO TRANSISTOR MID-32A22	NPWZM1D32A22
RESISTORS			
R001		GLASS GLAZE RES. 1/2W J 3.3M Ω or	RXX2JZLZ0335
		CARBON RES. 1/2W J 3.3M Ω	RCX2335DP001
R002		METAL OXIDE FILM RES. 1W J 2.7 Ω or	RN012R7ZU001
		METAL OXIDE FILM RES. 1W J 2.7 Ω	RN012R7KE009
R004		CARBON RES. 1/6W J 2.7M Ω or	RCX6JATZ0275
		CARBON RES. 1/4W J 2.7M Ω	RCX4JATZ0275
R005		CARBON RES. 1/6W J 2.7M Ω or	RCX6JATZ0275
		CARBON RES. 1/4W J 2.7M Ω	RCX4JATZ0275
R008		CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
		CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R011		METAL OXIDE FILM RES. 1W J 68k Ω or	RN01683ZU001
		METAL OXIDE FILM RES. 1W J 68k Ω	RN01683KE009
R012		CHIP RES.(1608) 1/10W J 22k Ω or	RRXAJB5Z0223
		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R014		METAL OXIDE FILM RES. 1W J 1.2 Ω or	RN011R2ZU001
		METAL OXIDE FILM RES. 1W J 1.2 Ω	RN011R2KE009
R016		CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R019		CHIP RES.(1608) 1/10W J 470k Ω or	RRXAJB5Z0474
		CHIP RES.(1608) 1/10W J 470k Ω	RRXAJR5Z0474
R022		CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R030		CHIP RES.(1608) 1/10W J 1.5k Ω or	RRXAJB5Z0152
		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJR5Z0152
R031		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R032		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R033		CHIP RES.(1608) 1/10W J 390 Ω or	RRXAJB5Z0391
		CHIP RES.(1608) 1/10W J 390 Ω	RRXAJR5Z0391
R037		CHIP RES.(1608) 1/10W J 22k Ω or	RRXAJB5Z0223
		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R038		CHIP RES.(1608) 1/10W J 330 Ω or	RRXAJB5Z0331
		CHIP RES.(1608) 1/10W J 330 Ω	RRXAJR5Z0331
R039		CARBON RES. 1/6W J 0.47 Ω or	RCX6JATZ0R47
		CARBON RES. 1/4W J 0.47 Ω	RCX4JATZ0R47
R056		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R057		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R073		CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R075		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R081		CHIP RES.(1608) 1/10W J 120k Ω or	RRXAJB5Z0124
		CHIP RES.(1608) 1/10W J 120k Ω	RRXAJR5Z0124
R082		CHIP RES.(1608) 1/10W J 220k Ω or	RRXAJB5Z0224
		CHIP RES.(1608) 1/10W J 220k Ω	RRXAJR5Z0224
R083		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R084		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R085		CHIP RES.(1608) 1/10W J 22k Ω or	RRXAJB5Z0223
		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R086		CHIP RES.(1608) 1/10W J 6.8k Ω or	RRXAJB5Z0682
		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJR5Z0682
R253		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R254		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R301		CHIP RES.(1608) 1/10W J 560k Ω or	RRXAJB5Z0564
		CHIP RES.(1608) 1/10W J 560k Ω	RRXAJR5Z0564
R302		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R303		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R304		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473

Ref. No.	Mark	Description	Part No.
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R305		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R306		CHIP RES.(1608) 1/10W J 18k Ω or	RRXAJB5Z0183
		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJR5Z0183
R307		CHIP RES.(1608) 1/10W J 3.9k Ω or	RRXAJB5Z0392
		CHIP RES.(1608) 1/10W J 3.9k Ω	RRXAJR5Z0392
R308		CHIP RES.(1608) 1/10W J 270 Ω or	RRXAJB5Z0271
		CHIP RES.(1608) 1/10W J 270 Ω	RRXAJR5Z0271
R309		CHIP RES.(1608) 1/10W J 15k Ω or	RRXAJB5Z0153
		CHIP RES.(1608) 1/10W J 15k Ω	RRXAJR5Z0153
R311		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R312		CHIP RES.(1608) 1/10W J 1.2k Ω or	RRXAJB5Z0122
		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R313		CHIP RES.(1608) 1/10W J 100k Ω or	RRXAJB5Z0104
		CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R319		CHIP RES.(1608) 1/10W J 1.5k Ω or	RRXAJB5Z0152
		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJR5Z0152
R320		CHIP RES.(1608) 1/10W J 1.2k Ω or	RRXAJB5Z0122
		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R321		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R322		CHIP RES.(1608) 1/10W J 5.6M Ω or	RRXAJB5Z0565
		CHIP RES.(1608) 1/10W J 5.6M Ω	RRXAJR5Z0565
R323		CHIP RES.(1608) 1/10W J 100k Ω or	RRXAJB5Z0104
		CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R324		CHIP RES.(1608) 1/10W J 82k Ω or	RRXAJB5Z0823
		CHIP RES.(1608) 1/10W J 82k Ω	RRXAJR5Z0823
R326		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R327		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R328		CHIP RES.(1608) 1/10W J 680k Ω or	RRXAJB5Z0684
		CHIP RES.(1608) 1/10W J 680k Ω	RRXAJR5Z0684
R329		CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R330		CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R331		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R332		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R341		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R342		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R343		CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R391		CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
		CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R392		CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
		CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R395		CARBON RES. 1/6W J 10 Ω or	RCX6JATZ0100
		CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R396		CHIP RES.(1608) 1/10W J 220 Ω or	RRXAJB5Z0221
		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJR5Z0221
R401		CHIP RES.(1608) 1/10W J 6.8k Ω or	RRXAJB5Z0682
		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJR5Z0682
R402		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822

Ref. No.	Mark	Description	Part No.
R407		CHIP RES.(1608) 1/10W J 2.2M Ω or	RRXAJB5Z0225
		CHIP RES.(1608) 1/10W J 2.2M Ω	RRXAJR5Z0225
R408		CHIP RES.(1608) 1/10W J 6.8k Ω or	RRXAJB5Z0682
		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJR5Z0682
R409		CHIP RES.(1608) 1/10W J 3.3k Ω or	RRXAJB5Z0332
		CHIP RES.(1608) 1/10W J 3.3k Ω	RRXAJR5Z0332
R410		CHIP RES.(1608) 1/10W J 6.8k Ω or	RRXAJB5Z0682
		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJR5Z0682
R411		CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R412		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R413		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R414		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R415		CHIP RES.(1608) 1/10W J 12k Ω or	RRXAJB5Z0123
		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJR5Z0123
R416		CHIP RES.(1608) 1/10W J 330k Ω or	RRXAJB5Z0334
		CHIP RES.(1608) 1/10W J 330k Ω	RRXAJR5Z0334
R417		CHIP RES.(1608) 1/10W J 150 Ω or	RRXAJB5Z0151
		CHIP RES.(1608) 1/10W J 150 Ω	RRXAJR5Z0151
R418		CHIP RES.(1608) 1/10W J 18k Ω or	RRXAJB5Z0183
		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJR5Z0183
R419		CHIP RES.(1608) 1/10W J 910 Ω or	RRXAJB5Z0911
		CHIP RES.(1608) 1/10W J 910 Ω	RRXAJR5Z0911
R420		CHIP RES.(1608) 1/10W J 330 Ω or	RRXAJB5Z0331
		CHIP RES.(1608) 1/10W J 330 Ω	RRXAJR5Z0331
R421		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R422		CHIP RES.(1608) 1/10W J 22k Ω or	RRXAJB5Z0223
		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R424		CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R425		CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R426		CARBON RES. 1/6W J 820 Ω or	RCX6JATZ0821
		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R430		CHIP RES.(1608) 1/10W 0 Ω or	RRXAZB5Z0000
		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R431		CHIP RES.(1608) 1/10W 0 Ω or	RRXAZB5Z0000
		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R451		CHIP RES.(1608) 1/10W J 12k Ω or	RRXAJB5Z0123
		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJR5Z0123
R452		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R453		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R454		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R455		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R456		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R457		CHIP RES.(1608) 1/10W J 470 Ω or	RRXAJB5Z0471
		CHIP RES.(1608) 1/10W J 470 Ω	RRXAJR5Z0471
R458		CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R459		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R460		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822

Ref. No.	Mark	Description	Part No.
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R461		CHIP RES.(1608) 1/10W J 47k Ω or	RRXAJB5Z0473
		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R462		CHIP RES.(1608) 1/10W J 8.2k Ω or	RRXAJB5Z0822
		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R463		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R464		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R466		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R472		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R473		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R474		CHIP RES.(1608) 1/10W J 2.7k Ω or	RRXAJB5Z0272
		CHIP RES.(1608) 1/10W J 2.7k Ω	RRXAJR5Z0272
R477		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R501		CHIP RES.(1608) 1/10W J 820 Ω or	RRXAJB5Z0821
		CHIP RES.(1608) 1/10W J 820 Ω	RRXAJR5Z0821
R502		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R504		CHIP RES.(1608) 1/10W J 100k Ω or	RRXAJB5Z0104
		CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R505		CHIP RES.(1608) 1/10W J 100k Ω or	RRXAJB5Z0104
		CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R508		CHIP RES.(1608) 1/10W J 330k Ω or	RRXAJB5Z0334
		CHIP RES.(1608) 1/10W J 330k Ω	RRXAJR5Z0334
R509		CHIP RES.(1608) 1/10W J 68k Ω or	RRXAJB5Z0683
		CHIP RES.(1608) 1/10W J 68k Ω	RRXAJR5Z0683
R513		CHIP RES.(1608) 1/10W J 220k Ω or	RRXAJB5Z0224
		CHIP RES.(1608) 1/10W J 220k Ω	RRXAJR5Z0224
R514		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R515		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R516		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R517		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R518		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R521		CARBON RES. 1/6W G 4.7k Ω or	RCX6GATZ0472
		CARBON RES. 1/4W G 4.7k Ω	RCX4GATZ0472
R522		CARBON RES. 1/6W G 1.5k Ω or	RCX6GATZ0152
		CARBON RES. 1/4W G 1.5k Ω	RCX4GATZ0152
R523		CARBON RES. 1/6W G 22k Ω or	RCX6GATZ0223
		CARBON RES. 1/4W G 22k Ω	RCX4GATZ0223
R524		CARBON RES. 1/6W G 470 Ω or	RCX6GATZ0471
		CARBON RES. 1/4W G 470 Ω	RCX4GATZ0471
R525		CARBON RES. 1/6W G 10k Ω or	RCX6GATZ0103
		CARBON RES. 1/4W G 10k Ω	RCX4GATZ0103
R526		CARBON RES. 1/6W G 3.6k Ω or	RCX6GATZ0362
		CARBON RES. 1/4W G 3.6k Ω	RCX4GATZ0362
R528		CHIP RES.(1608) 1/10W J 33k Ω or	RRXAJB5Z0333
		CHIP RES.(1608) 1/10W J 33k Ω	RRXAJR5Z0333
R532		CHIP RES.(1608) 1/10W J 390k Ω or	RRXAJB5Z0394
		CHIP RES.(1608) 1/10W J 390k Ω	RRXAJR5Z0394
R533		CHIP RES.(1608) 1/10W J 390k Ω or	RRXAJB5Z0394
		CHIP RES.(1608) 1/10W J 390k Ω	RRXAJR5Z0394

Ref. No.	Mark	Description	Part No.
R535		CARBON RES. 1/4W J 270 Ω	RCX4JATZ0271
R537		CHIP RES.(1608) 1/10W J 4.7k Ω or	RRXAJB5Z0472
		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R538		CHIP RES.(1608) 1/10W J 18k Ω or	RRXAJB5Z0183
		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJR5Z0183
R542		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R543		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R547		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R548		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R584		PCB JUMPER D0.6-P5.0	JW5.0T
R585		CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R586		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R587		CHIP RES.(1608) 1/10W J 1.2k Ω or	RRXAJB5Z0122
		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R588		CHIP RES.(1608) 1/10W J 1.5k Ω or	RRXAJB5Z0152
		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJR5Z0152
R589		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R595		CARBON RES. 1/6W J 680 Ω or	RCX6JATZ0681
		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R598		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R602		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R603		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R606		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R608		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R610		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R612		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R614		CHIP RES.(1608) 1/10W J 10k Ω or	RRXAJB5Z0103
		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R643		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R647		CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
		CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R648		CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
		CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R701		CHIP RES.(1608) 1/10W J 100 Ω or	RRXAJB5Z0101
		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJR5Z0101
R702		CARBON RES. 1/6W J 1.8k Ω or	RCX6JATZ0182
		CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R704		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R705		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R751		CHIP RES.(1608) 1/10W J 75 Ω or	RRXAJB5Z0750
		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R752		CHIP RES.(1608) 1/10W J 75 Ω or	RRXAJB5Z0750
		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R753		CHIP RES.(1608) 1/10W J 75 Ω or	RRXAJB5Z0750
		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R852		CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102

Ref. No.	Mark	Description	Part No.
		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R854		CHIP RES.(1608) 1/10W J 1M Ω or	RRXAJB5Z0105
		CHIP RES.(1608) 1/10W J 1M Ω	RRXAJR5Z0105
		SWITCHES	
SW501		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A	SST0101AL041
SW502		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A	SST0101AL041
SW503		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A	SST0101AL041
SW504		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A	SST0101AL041
SW505		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A	SST0101AL041
SW506		LEAF SWITCH LSA-1142AU or	SSC0101KB013
		LEAF SWITCH MXS00981MPP0 or	SSC0101MCE02
		LEAF SWITCH MXS00052MPP0	SSC0101MCE01
SW507		ROTARY MODE SWITCH SSS-43MD or	SSR0106KB001
		ROTARY MODE SWITCH R8100212	SSR0106U3001
SW701		SLIDE SWITCH SK12D07VG5-L A	SSS0102LY003
		MISCELLANEOUS	
2B8		BUSH, LED(F) H3700UD	0VM409508
2B34		SHIELD, HEAD HB200UD	0VM412637
A5		JACK BOARD(HI-FI) H36D4PX:PHILIPPINE	0VM303638A
AC001⚠		AC CORD A0A0280-007 or	WAC0172LTE04
⚠		AC CORD PB8K9F9110A-057	WAC0172LW008
F001⚠		FUSE SIC 1A 250V UC/T or	PAGG20CW3102
⚠		FUSE 1A/250V or	PAGA20CW3102
⚠		FUSE 1A/250V	PAGG20CAG102
FH001		FUSE HOLDER MSF-015	XH01Z00LY001
FH002		FUSE HOLDER MSF-015	XH01Z00LY001
JK751		RCA JACK MSP-283V-B-324 or	JXRL040LY006
		RCA JACK WT04068A-09	JXRL040WEL06
JK752		RCA JACK MSP-293V3-324 or	JYRL060LY003
		RCA JACK WT04075C-09	JYRL060WEL02
JK753		RCA JACK(YELLOW) MSP-281V4-B or	JXRL010LY003
		RCA JACK(YELLOW) WTJ032-10BY	JXRL010WEL04
JK754		RCA JACK(WHITE) MSP-281V1-B or	JXRL010LY005
		RCA JACK(WHITE) WTJ032-10BW	JXRL010WEL03
JK755		RCA JACK(RED) MSP-281V3-A or	JYRL010LY002
		RCA JACK(RED) WTJ032-10AR	JYRL010WEL01
RS501		REMOTE RECEIVER MIM-93M9DKF or	USESJRSUNT03
		REMOTE RECEIVER PIC-37042LQ	USESJRSKK038
T001⚠		PULSE TRANS CSA-SW0019	LTT00CPSA110
TP301		PCB JUMPER D0.6-P15.0	JW15.0T
TP302		PCB JUMPER D0.6-P27.5	JW27.5T
TP303		PCB JUMPER D0.6-P7.5	JW7.5T
TP502		PCB JUMPER D0.6-P5.0	JW5.0T
TP505		PCB JUMPER D0.6-P7.5	JW7.5T
TP506		PCB JUMPER D0.6-P5.0	JW5.0T
TP751		PCB JUMPER D0.6-P20.5	JW20.5T
TP753		PCB JUMPER D0.6-P10.0	JW10.0T
TP754		PCB JUMPER D0.6-P10.0	JW10.0T
VR501		CARBON P.O.T. 100k Ω B	VRCB104HH014
X301		X'TAL 3.579545MHz(20PPM) or	FXC355LLN003
		X'TAL 3.579545MHz(20PPM) or	FXC355LCHE01
		X'TAL 3.579545MHz(20PPM) or	FXC355LDS001
		X'TAL 3.579545MHz(20PPM)	FXC355LJNY01
X502		X'TAL 32.768kHz(20PPM) or	FXC323LQUA01
		X'TAL 32.768kHz(20PPM) or	FXC323LCT001
		X'TAL 32.768kHz(20PPM)	FXC323LDS002
		TUNER EXCLUSIVE(A) CN2510/B400/ SANYO	0VDM11101
TU701		TUNER UNIT VD045AQ	UTUNNTUSP020
TU701		TUNER UNIT TMZH2-001A (TU701 Used only if J192, J193, J194 and J215 are used.)	UTUNNTUAL030
J192		PCB JUMPER P18.0MM (Used TU701: Part No. UTUNNTUAL030)	JW18.0
J194		PCB JUMPER P15.0MM (Used TU701: Part No. UTUNNTUAL030)	JW15.0
J215		PCB JUMPER P16.0MM (Used TU701: Part No. UTUNNTUAL030)	JW16.0

FUNCTION CBA

Ref. No.	Mark	Description	Part No.
		FUNCTION CBA (MCV-B) Consists of the following	----------
		CONNECTOR	
CN651		ANGLE PIN HEADER, 3P 6029B-1-03Z002-T	5700063
		RESISTORS	
R650	A	PCB JUMPER D0.6-P5.0	JW5.0T
R651	A,B	CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
	A,B	CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R652	A	CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
	A	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R652	C	CHIP RES.(1608) 1/10W J 1.8k Ω or	RRXAJB5Z0182
	C	CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R653	A	CHIP RES.(1608) 1/10W J 1.2k Ω or	RRXAJB5Z0122
	A	CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R654		CHIP RES.(1608) 1/10W J 1.5k Ω or	RRXAJB5Z0152
		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJR5Z0152
R655		CHIP RES.(1608) 1/10W J 2.2k Ω or	RRXAJB5Z0222
		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R656	B	CHIP RES.(1608) 1/10W J 3.9k Ω or	RRXAJB5Z0392
	B	CHIP RES.(1608) 1/10W J 3.9k Ω	RRXAJR5Z0392
R660	C	PCB JUMPER D0.6-P5.0	JW5.0T
R662	B	CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
	B	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R663	B	CHIP RES.(1608) 1/10W J 1.2k Ω or	RRXAJB5Z0122
	B	CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R676	A,C	CHIP RES.(1608) 1/10W J 3.9k Ω or	RRXAJB5Z0392
	A,C	CHIP RES.(1608) 1/10W J 3.9k Ω	RRXAJR5Z0392
R682	C	CHIP RES.(1608) 1/10W J 1k Ω or	RRXAJB5Z0102
	C	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R683	C	CHIP RES.(1608) 1/10W J 1.2k Ω or	RRXAJB5Z0122
	C	CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
		SWITCHES	
SW645	A	TACT SWITCH KSM0614B or	SST0101HH013
	A	TACT SWITCH SKQSAF001A	SST0101AL041
SW647	A,C	TACT SWITCH KSM0614B or	SST0101HH013
	A,C	TACT SWITCH SKQSAF001A	SST0101AL041
SW651	B	TACT SWITCH KSM0614B or	SST0101HH013
	B	TACT SWITCH SKQSAF001A	SST0101AL041
SW652	A,B	TACT SWITCH KSM0614B or	SST0101HH013
	A,B	TACT SWITCH SKQSAF001A	SST0101AL041
SW653	A,B	TACT SWITCH KSM0614B or	SST0101HH013
	A,B	TACT SWITCH SKQSAF001A	SST0101AL041
SW654	A,B	TACT SWITCH KSM0614B or	SST0101HH013
	A,B	TACT SWITCH SKQSAF001A	SST0101AL041
SW656	B	TACT SWITCH KSM0614B or	SST0101HH013
	B	TACT SWITCH SKQSAF001A	SST0101AL041
SW663	C	TACT SWITCH KSM0614B or	SST0101HH013

Ref. No.	Mark	Description	Part No.
	C	TACT SWITCH SKQSAF001A	SST0101AL041
SW665	B	TACT SWITCH KSM0614B or	SST0101HH013
	B	TACT SWITCH SKQSAF001A	SST0101AL041
SW676	A	TACT SWITCH KSM0614B or	SST0101HH013
	A	TACT SWITCH SKQSAF001A	SST0101AL041
SW677	B	TACT SWITCH KSM0614B or	SST0101HH013
	B	TACT SWITCH SKQSAF001A	SST0101AL041
SW683	A,C	TACT SWITCH KSM0614B or	SST0101HH013
	A,C	TACT SWITCH SKQSAF001A	SST0101AL041
SW685	C	TACT SWITCH KSM0614B or	SST0101HH013
	C	TACT SWITCH SKQSAF001A	SST0101AL041
SW692	C	TACT SWITCH KSM0614B or	SST0101HH013
	C	TACT SWITCH SKQSAF001A	SST0101AL041
SW694	C	TACT SWITCH KSM0614B or	SST0101HH013
	C	TACT SWITCH SKQSAF001A	SST0101AL041
SW696	C	TACT SWITCH KSM0614B or	SST0101HH013
	C	TACT SWITCH SKQSAF001A	SST0101AL041

SENSOR CBA

Ref. No.	Description	Part No.
	SENSOR CBA Consists of the following	0VSA12195
	TRANSISTORS	
Q503	PHOTO TRANSISTOR PT204-6B-12 or	NPWZT2046B12
	PHOTO TRANSISTOR MID-32A22	NPWZM1D32A22
Q504	PHOTO TRANSISTOR PT204-6B-12 or	NPWZT2046B12
	PHOTO TRANSISTOR MID-32A22	NPWZM1D32A22

DECK PARTS LIST

Ref. No.	Description	Part No.
B2	CYLINDER ASSEMBLY MK11 NTSC 4HD HIFI	N1468CYL
	CYLINDER ASSEMBLY(V) MK11 NTSC 4HD HIFI	N1469CYL
B3	LOADING MOTOR ASSEMBLY MK11	0VSA12093
B8	PULLEY ASSEMBLY MK11	0VSA12078
B9	MOVING GUIDE S PREPARATION MK10	0VSA11002
B10	MOVING GUIDE T PREPARATION MK10	0VSA11004
B11	LOADING ARM T(B) ASSEMBLY MK11	0VSA12110
B12	LOADING ARM S(B) ASSEMBLY MK11	0VSA12109
B27	TENSION LEVER SUB ASSEMBLY MK11	0VSA12076
B31	AC HEAD ASSEMBLY MK11	0VSA12074
B35	TAPE GUIDE ASSEMBLY MK11	0VSA12069
B37	CAPSTAN MOTOR 288/VCCM011	N9660CML
B52	CAP BELT MK10	0VM411138
B73	FE HEAD ASSEMBLY MK11 or	N9742FEL
	FE HEAD(MK11) MH-131SF11 or	DHVEC01Z0005
	FE HEAD ASSEMBLY MK11	N9743FEL
B74	PRISM MK10	0VM202870
B121	WORM MK11	0VM412544
B126	PULLEY MK11	0VM412543
B133	IDLER ASSEMBLY MK10	0VSA11017
B148	TG CAP MK11	0VM412972
B300	C DRIVE LEVER R MK11	0VM305068
B303	F DOOR OPENER MK11	0VM203299
B347	GUIDE HOLDER A MK10	0VM304920
B354	SLIDER R MK11	0VM101040
B355	SLIDER L MK11	0VM203296
B359	CLEANER LEVER MK10 or	0VM304413
	CLEANER LEVER MK11	0VM305090
B360	CLEANER ROLLER MK9	0VM410032C
B361	CL POST MK10	0VM411114
B410	PINCH ARM(A) ASSEMBLY MK11	0VSA12064
B411	PINCH SPRING MK10	0VM411092
B414	M BRAKE S ASSEMBLY MK11	0VSA12211
B416	M BRAKE T ASSEMBLY MK11	0VSA12212
B417	TENSION SPG(190265) MK11	0VM412984
B425	LOCK LEVER SPRING MK10	0VM411110
B426	KICK PULLEY MK10	0VM411095
B482	C PLATE MK11	0VM203297
B483	LOCK LEVER MK10	0VM411109D
B487	BAND BRAKE MK10	0VM304416B
B488	MODE LEVER MK11 or	0VM101043
	MODE LEVER(PB) MK11	0VM101112
B491	CAM GEAR(A) MK11	0VM101044
B492	MODE GEAR MK11	0VM305074
B494	DOOR OPENER B MK11	0VM305072
B499	T LEVER HOLDER MK10	0VM304419
B501	WORM HOLDER MK11	0VM305067
B502	CAM GEAR(B) MK10	0VM304403
B505	PSCW(625504) MK11	0VM413288
B507	REEL WASHER MK9 5*2.1*0.5	0VM410058
B508	S BRAKE SPRING MK10	0VM411121
B513	PSCW(752605) MK10	0VM411516
B514	SCREW RACK MK11	0VM412597
B516	REEL WASHER MK9 5*2.1*0.5	0VM410058
B518	P.S.W CUT 1.6X4.0X0.5T	0VM408485A

Ref. No.	Description	Part No.
B520	T BRAKE SPRING MK10	0VM411123
B521	SOFT SPRING MK10	0VM411122
B522	TG POST ASSEMBLY MK11	0VSA12080
B525	LDG BELT MK11	0VM412804
B529	CLEANER ASSEMBLY MK11	0VSA12086
B551	FF ARM MK11	0VM305069
B553	REV SPRING MK11	0VM412555
B555	RACK ASSEMBLY MK11	0VSA12071
B557	MOTOR PULLEY U5	0VM403205A
B558	LOADING MOTOR M31E-1 R14 7351	MMDZB12MM002
B559	CLUTCH ASSEMBLY MK11	0VSA12350
B560	KICK SPRING MK10	0VM411475A
B562	C DRIVE LEVER L MK10	0VM304408
B563	SLIDER SHAFT MK10	0VM411112
B564	M GEAR MK10	0VM411136E
B565	SENSOR GEAR MK11	0VM305080
B567	PINCH ARM(B) MK10	0VM304396
B568	BT ARM MK10	0VM304417H
B569	CAM HOLDER F MK11	0VM305075
B570	CAM RACK SPG MK10	0VM411102
B571	P.S.W F 6*2.55*0.5	0VM402629A
B572	P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B573	REEL S MK11	0VM203436
B574	REEL T MK10	0VM202872C
B585	PSW(2957505) MK11	0VM412745
L1051	SCREW, B-TIGHT M2.6X6 PAN HEAD+	GPMB9060
L1053	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1151	SCREW, SEMS M2.6X4 PAN HEAD+	CPM39040
L1191	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1321	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1341	SCREW, P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L1406	AC HEAD SCREW MK9	0VM410964
L1450	SCREW, SEMS M2.6X5 PAN HEAD+	CPM39050
L1461	SCREW, P-TIGHT M2.6X6 WASHER HEAD+	GCMP9060
L1466	SCREW, S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
L1467	SCREW, S-TIGHT M2.6X5 WASHER HEAD+	GCMS9050
L1468	SCREW, B-TIGHT M1.7X12	GAMB7120

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